

Tubular and Process Assemblies

F.O.B.: Hannibal, Missouri

Circulation Heaters

Replacement Heater Assemblies

To help assure minimum process downtime, it's advisable to order and keep on hand a replacement flange or screw plug heater assembly.

Spare and/or replacement screw plug or flange heaters can be ordered by simply providing the

complete circulation heater code number and specifying "replacement heater only."

1 1/4" NPT

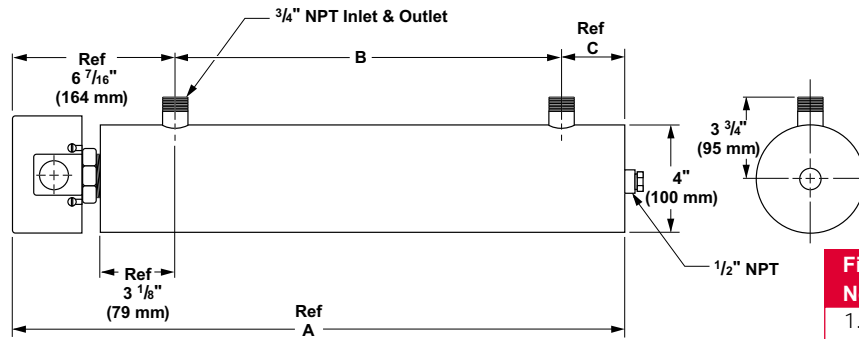


Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
1.1	24 3/8 (625)	15 (381)	3 1/8 (79)
1.2	32 3/8 (829)	23 (584)	3 (76)
1.3	42 3/8 (1083)	32 (813)	4 (102)
1.4	63 3/8 (1616)	53 (1346)	4 (102)

1 1/4" NPT Screw Plug—WATROD Element

WATROD Description	kW	Fig. No.	Code No.		Est. Ship. Weight lbs (kg)
			120/240V~(ac) 1-Phase	240V~(ac) 1-Phase	

Application: Clean Water

60 W/in ² ④	3.0	1.1	CBEC15A6		23 (11)
Steel Tank	4.0	1.1		CBEC19A10	29 (14)
2-Copper	5.0	1.2		CBEC23J10	29 (14)
(9.3 W/cm ²)	6.0	1.2		CBEC27J10	31 (14)

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ² ④	1.0	1.1	CBEN13G6		21 (10)
Steel Tank	1.5	1.1	CBEN19A6		29 (14)
2-Incoloy®	2.0	1.2	CBEN24G6		29 (14)
(3.6 W/cm ²)					

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in ² ④	1.5	1.1	CBES19G6		29 (14)
Steel Tank	2.0	1.2	CBES25G6		29 (14)
2-Steel					
(3.6 W/cm ²)					

All circulation heaters are Assembly Stock unless otherwise noted.

④ Wired for higher voltage.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Tubular and Process Assemblies

Circulation Heaters

1¼" NPT Screw Plug—FIREBAR Element

FIREBAR Description	kW	Fig. No.	Code No.				Est. Ship. Weight	
			240V~(ac) 1-Phase	240V~(ac) 3-Phase	480V~(ac) 1-Phase	480V~(ac) 3-Phase	lbs	(kg)

Applications: Clean and Potable Water

90 W/in²® Steel Tank 1-Incoloy® (14 W/cm ²)	1.5	1.1	CBDNF7R10 ^{②⑦}		CBDNF7R11 ^{②⑦}		26	(12)
	3.0	1.1	CBDNF11G10 ^{②⑦}		CBDNF11G11 ^②		26	(12)
	5.0	1.1		CBDNF16G3		CBDNF16G5	26	(12)
	6.5	1.2		CBDNF19G3		CBDNF19G5	30	(14)
	8.5	1.2		CBDNF24L3		CBDNF24L5	31	(14)
	10.5	1.3		CBDNF29R3		CBDNF29R5	43	(20)
	12.75	1.3		CBDNF34R3		CBDNF34R5	44	(20)
	17.0	1.4		CBDNF45G3		CBDNF45G5	69	(32)
	21.5	1.4				CBDNF55R5	71	(33)

Applications: Process Water, Ethylene Glycol (50%)

45 W/in²® Steel Tank 1-Incoloy® (7 W/cm ²)	2.0	1.1		CBDNF13A27			25	(12)
	2.5	1.1		CBDNF15J27			26	(12)
	3.0	1.2		CBDNF18A27			30	(14)
	4.0	1.2		CBDNF22J27		CBDNF22J28	31	(14)
	5.0	1.3		CBDNF27J27		CBDNF27J28	43	(20)
	6.0	1.3		CBDNF32J27		CBDNF32J28	44	(20)
	8.0	1.4		CBDNF42A27		CBDNF42A28	69	(32)
	10.0	1.4		CBDNF51J27		CBDNF51J28	71	(33)

Applications: Cooking Oils, Ethylene Glycol (100%)

30 W/in²® Steel Tank 1-Incoloy® (4.7 W/cm ²)	1.7	1.1		CBDNF16G12		CBDNF16G13	26	(12)
	2.2	1.2		CBDNF19G12		CBDNF19G13	30	(14)
	2.8	1.2		CBDNF24L12		CBDNF24L13	31	(14)
	3.5	1.3		CBDNF29R12		CBDNF29R13	43	(20)
	4.25	1.3		CBDNF34R12		CBDNF34R13	44	(20)
	5.7	1.4		CBDNF45G12		CBDNF45G13	69	(32)
	7.2	1.4		CBDNF55R12		CBDNF55R13	71	(33)

Applications: Heat Transfer Oils, Lubrication Oils, Mineral Oil, Degreasing Solutions

23 W/in²® Steel Tank 1-Incoloy® (3.6 W/cm ²)	1.25	1.1		CBDNF16G20			26	(12)
	1.65	1.2		CBDNF19G20			30	(14)
	2.15	1.2		CBDNF24L20		CBDNF24L19	31	(14)
	2.65	1.3		CBDNF29R20		CBDNF29R19	43	(20)
	3.20	1.3		CBDNF34R20		CBDNF34R19	44	(20)
	4.25	1.4		CBDNF45G20		CBDNF45G19	69	(32)
	5.40	1.4		CBDNF55R20		CBDNF55R19	71	(33)

CONTINUED

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

② Standard

③ Must be operated 3-phase wye.

⑦ Available in 1-phase only.

⑧ Can be wired 1-phase.

Tubular and Process Assemblies

Circulation Heaters

1/4" NPT Screw Plug—FIREBAR Element

FIREBAR Description	kW	Fig. No.	Code No.				Est. Ship. Weight lbs (kg)
			240V~(ac) 1-Phase	240V~(ac) 3-Phase	480V~(ac) 1-Phase	480V~(ac) 3-Phase	

Applications: Medium Weight Oils, Heat Transfer Oils, Lube Oils, Liquid Paraffin

15 W/in ² ③ Steel Tank	0.67 0.83	1.1 1.1		CBDNF13A29 CBDNF15J29			25 (12) 26 (12)
1-Incoloy® (2.3 W/cm ²)	1.00 1.33	1.2 1.2		CBDNF18A29 CBDNF22J29		CBDNF22J30	30 (14) 31 (14)
	1.67 2.00	1.3 1.3		CBDNF27J29 CBDNF32J29		CBDNF27J30 CBDNF32J30	43 (20) 44 (20)
	2.67 3.30	1.4 1.4		CBDNF42A29 CBDNF51J29		CBDNF42A30 CBDNF51J30	69 (32) 71 (33)

Applications: Bunker C and #6 Fuel Oils, Asphalt

8 W/in ² ③ Steel Tank	0.43 0.55	1.1 1.2		CBDNF16G22 CBDNF19G22			26 (12) 30 (14)
1-Incoloy® (1.3 W/cm ²)	0.70 0.88	1.2 1.3		CBDNF24L22 CBDNF29R22		CBDNF24L21 CBDNF29R21	31 (14) 43 (20)
	1.08 1.40	1.3 1.4		CBDNF34R22 CBDNF45G22		CBDNF34R21 CBDNF45G21	44 (20) 69 (31)
	1.80	1.4		CBDNF55R22		CBDNF55R21	71 (32)

All circulation heaters are Assembly Stock unless otherwise noted.

Truck Shipment only

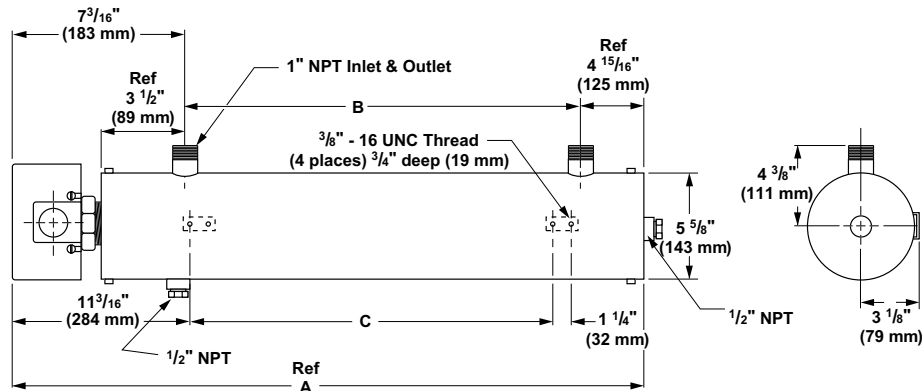
③ Must be operated 3-phase wye only.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

2 1/2" NPT



2 1/2" NPT Screw Plug

Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
2.1	34 11/16 (881)	22 1/2 (572)	16 1/2 (419)
2.2	44 11/16 (1135)	32 1/2 (1129)	26 1/2 (673)
2.3	57 3/16 (1453)	45 (1143)	39 (991)
2.4	63 11/16 (1618)	51 1/2 (1308)	46 1/2 (1181)
2.5	34 11/16 (881)	22 1/2 (572)	16 1/2 (419)
2.6	44 11/16 (1135)	32 1/2 (1129)	26 1/2 (673)
2.7	57 3/16 (1453)	45 (1143)	39 (991)

Tubular and Process Assemblies

Circulation Heaters

2½" NPT Screw Plug—WATROD Element

WATROD Description	kW	Fig. No.	Code No.		Est. Ship.	
			240V~(ac) 3-Phase	480V~(ac) 3-Phase	Weight lbs	(kg)

Application: Clean Water

60 W/in ² Steel Tank	6.0	2.5	CBLC714L3	CBLC714L5	24	(11)
	7.5	2.5	CBLC717L3	CBLC717L5	24	(11)
3-Copper	9.0	2.5	CBLC720L3	CBLC720L5	26	(12)
(9.3 W/cm ²)	12.0	2.6	CBLC726C3	CBLC726C5	27	(13)
	15.0	2.6	CBLC731L3	CBLC731L5	29	(14)
	18.0	2.7	CBLC737C3	CBLC737C5	30	(14)

Application: Deionized Water, Demineralized Water

60 W/in ² 316 SS Tank	6.0	2.5	CBLR714L3	CBLR714L5	24	(11)
	7.5	2.5	CBLR717L3	CBLR717L5	24	(11)
3-316 SS	9.0	2.5	CBLR720L3	CBLR720L5	26	(12)
(9.3 W/cm ²)	12.0	2.6	CBLR726C3	CBLR726C5	27	(13)
Passivated	15.0	2.6	CBLR731L3	CBLR731L5	29	(14)
	18.0	2.7	CBLR737C3	CBLR737C5	30	(14)

Application: Process Water

48 W/in ² Steel Tank	6.0	2.5	CBLN717G3	CBLN717G5	24	(11)
	7.5	2.5	CBLN719R3	CBLN719R5	26	(12)
3-Incoloy®	9.0	2.5	CBLN724R3	CBLN724R5	27	(13)
(7.5 W/cm ²)	12.0	2.6	CBLN732G3	CBLN732G5	29	(14)
	15.0	2.7	CBLN739R3	CBLN739R5	31	(14)
	18.0	2.7	CBLN747G3	CBLN747G5	32	(15)

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ² ⑤⑥ Steel Tank	3.0	2.5	CBLNA17G3	CBLNA17G5	24	(11)
	4.5	2.6	CBLNA24R3	CBLNA24R5	27	(13)
3-Incoloy®	6.0	2.6	CBLNA32G3	CBLNA32G5	29	(14)
(3.6 W/cm ²)	7.5	2.7	CBLNA39R3	CBLNA39R5	31	(14)
	9.0	2.7	CBLNA47G3	CBLNA47G5	32	(15)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in ² ⑥ Steel Tank	3.0	2.5	CBLS717E3	CBLS717E5	24	(11)
	4.5	2.5	CBLS724N3	CBLS724N5	27	(13)
3-Steel	6.0	2.6	CBLS732E3	CBLS732E5	29	(14)
(3.6 W/cm ²)	7.5	2.7	CBLS739N3	CBLS739N5	31	(14)
	9.0	2.7	CBLS747E3	CBLS747E5	32	(15)

Applications: Medium Weight Oils, Heat Transfer Oils, Lube Oils, Liquid Paraffin

16 W/in ² ③ Steel Tank	2.0	2.5	CBLN717G12	CBLN717G13	24	(11)
	2.5	2.5	CBLN719R12	CBLN719R13	26	(12)
3-Incoloy®	3.0	2.5	CBLN724R12	CBLN724R13	27	(13)
(2.5 W/cm ²)	4.0	2.6	CBLN732G12	CBLN732G13	29	(14)
	5.0	2.7	CBLN739R12	CBLN739R13	31	(14)
	6.0	2.7	CBLN747G12	CBLN747G13	32	(15)

Applications: Bunker C and #6 Fuel Oils

8 W/in ² ③ Steel Tank	2.0	2.6	CBLS732E12	CBLS732E13	29	(14)
	3.0	2.7	CBLS747E12	CBLS747E13	32	(15)
3-Steel						
(1.3 W/cm ²)						

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

③ Must be operated 3-phase wye only.

⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce ½ more kW and watt density.

⑥ Can be wired wye to produce ½ of the original kW and watt density (3-phase only).

Tubular and Process Assemblies

Circulation Heaters

2½" NPT Screw Plug—FIREBAR Element

FIREBAR Description	kW	Fig. No.	Code No.		Est. Ship. Weight	
			240V~(ac) 3-Phase	480V~(ac) 3-Phase	lbs	(kg)

Applications: Clean and Potable Water

90 W/in ² ®	15.0	2.1	CBLNF15C3	CBLNF15C5	22	(10)
Steel Tank	20.0	2.1	CBLNF18C3	CBLNF18C5 ^③	23	(11)
3-Incoloy®	25.0	2.1		CBLNF23C5	31	(14)
(14 W/cm ²)	32.0	2.2		CBLNF28L5	34	(16)
	38.0	2.2		CBLNF33L5	35	(16)

Applications: Process Water, Ethylene Glycol (50%)

45 W/in ² ®	6.0	2.1	CBLNF12A27		21	(10)
Steel Tank	7.5	2.1	CBLNF14J27		22	(10)
3-Incoloy®	9.0	2.1	CBLNF17A27		23	(11)
(7 W/cm ²)	12.0	2.1	CBLNF21J27	CBLNF21J28	31	(14)
	15.0	2.2	CBLNF26J27	CBLNF26J28	34	(16)
	18.0	2.2	CBLNF31J27	CBLNF31J28	35	(16)
	24.0	2.3		CBLNF41A28	44	(20)
	30.0	2.4		CBLNF50J28	52	(24)

Applications: Cooking Oils, Ethylene Glycol (100%)

30 W/in ² ®	5.0	2.1	CBLNF15C12	CBLNF15C13	22	(10)
Steel Tank	6.5	2.1	CBLNF18C12	CBLNF18C13	23	(11)
3-Incoloy®	8.5	2.1	CBLNF23C12	CBLNF23C13	31	(14)
(4.7 W/cm ²)	10.5	2.2	CBLNF28L12	CBLNF28L13	34	(16)
	12.8	2.2	CBLNF33L12	CBLNF33L13	35	(16)
	17.0	2.3	CBLNF44C12	CBLNF44C13	44	(20)
	21.5	2.4		CBLNF54L13	52	(24)

Applications: Heat Transfer Oils, Mineral Oil, Degreasing Solutions

23 W/in ² ®	3.8	2.1	CBLNF15C20		22	(10)
Steel Tank	4.9	2.1	CBLNF18C20		23	(11)
3-Incoloy®	6.4	2.1	CBLNF23C20	CBLNF23C19	31	(14)
(3.6 W/cm ²)	7.9	2.2	CBLNF28L20	CBLNF28L19	34	(16)
	9.6	2.2	CBLNF33L20	CBLNF33L19	35	(16)
	12.8	2.3	CBLNF44C20	CBLNF44C19	44	(20)
	16.1	2.4	CBLNF54L20	CBLNF54L19	52	(24)

Applications: Medium Weight Oils, Heat Transfer Oils, Lube Oils, Liquid Paraffin

15 W/in ² ®	2.0	2.1	CBLNF12A29		21	(10)
Steel Tank	2.5	2.1	CBLNF14J29		22	(10)
3-Incoloy®	3.0	2.1	CBLNF17A29		23	(11)
(2.3 W/cm ²)	4.0	2.1	CBLNF21J29	CBLNF21J30	31	(14)
	5.0	2.2	CBLNF26J29	CBLNF26J30	34	(16)
	6.0	2.2	CBLNF31J29	CBLNF31J30	35	(16)
	8.0	2.3	CBLNF41A29	CBLNF41A30	44	(20)
	10.0	2.4	CBLNF50J29	CBLNF50J30	52	(24)

Applications: Bunker C and #6 Fuel Oils, Asphalt

8 W/in ² ®	1.25	2.1	CBLNF15C22		22	(10)
Steel Tank	1.63	2.1	CBLNF18C22		23	(10)
3-Incoloy®	2.13	2.1	CBLNF23C22	CBLNF23C21	31	(14)
(1.3 W/cm ²)	2.63	2.2	CBLNF28L22	CBLNF28L21	34	(15)
	3.19	2.2	CBLNF33L22	CBLNF33L21	35	(16)
	4.25	2.3	CBLNF44C22	CBLNF44C21	44	(20)
	5.38	2.4	CBLNF54L22	CBLNF54L21	52	(24)

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Note: Assembly Stock may be shipped same day if ordered before 11:00 am CST.

③ Must be operated 3-phase wye only.

④ Can be wired 1-phase.

Tubular and Process Assemblies

Circulation Heaters

3" Flange

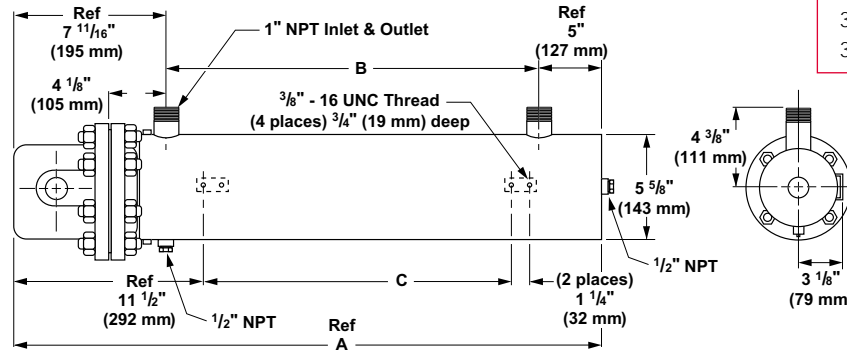


Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
3.1	35 5/16 (894)	22 1/2 (573)	16 1/2 (419)
3.2	45 3/16 (1148)	32 1/2 (826)	26 1/2 (673)
3.3	57 11/16 (1465)	45 (1143)	39 (991)

3" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.				Est. Ship. Weight lbs (kg)
			240V~(ac) 1-Phase	240V~(ac) 3-Phase	480V~(ac) 1-Phase	480V~(ac) 3-Phase	

Application: Clean Water

60 W/in ²	6.0	3.1	CFMC715J10	CFMC715J3	CFMC715J11	CFMC715J5	66 (30)
Steel Tank	9.0	3.1	CFMC721J10	CFMC721J3	CFMC721J11	CFMC721J5	70 (32)
3-Copper	12.0	3.2		CFMC727A3	CFMC727A11	CFMC727A5	80 (37)
(9.3 W/cm ²)	15.0	3.2		CFMC732J3	CFMC732J11	CFMC732J5	96 (44)
	18.0	3.3		CFMC738A3	CFMC738A11	CFMC738A5	98 (45)

Application: Process Water

48 W/in ² ⑤	6.0	3.1	CFMN718A10	CFMN718A3	CFMN718A11	CFMN718A5	68 (31)
Steel Tank	7.5	3.1	CFMN720J10	CFMN720J3	CFMN720J11	CFMN720J5	70 (32)
3-Incoloy®	9.0	3.2	CFMN725J10	CFMN725J3	CFMN725J11	CFMN725J5	78 (36)
(7.5 W/cm ²)	12.0	3.2		CFMN733A3	CFMN733A11	CFMN733A5	96 (44)
	15.0	3.3		CFMN740J3	CFMN740J11	CFMN740J5	100 (46)
	18.0	3.3		CFMN748A3	CFMN748A11	CFMN748A5	107 (49)

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ² ⑥	3.0	3.1	CFMNA18A10	CFMNA18A3	CFMNA18A11	CFMNA18A5	68 (31)
Steel Tank	4.5	3.2	CFMNA25J10	CFMNA25J3	CFMNA25J11	CFMNA25J5	78 (36)
3-Incoloy®	6.0	3.2	CFMNA33A10	CFMNA33A3	CFMNA33A11	CFMNA33A5	96 (44)
(3.6 W/cm ²)	7.5	3.3	CFMNA40J10	CFMNA40J3	CFMNA40J11	CFMNA40J5	100 (46)
	9.0	3.3	CFMNA48A10	CFMNA48A3	CFMNA48A11	CFMNA48A5	107 (49)

CONTINUED

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce 1/2 more kW and watt density.

⑥ Can be wired wye to produce 1/2 of the original kW and watt density (3-phase only).

Tubular and Process Assemblies

Circulation Heaters

3" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.				Est. Ship. Weight	
			240V~(ac) 1-Phase	240V~(ac) 3-Phase	480V~(ac) 1-Phase	480V~(ac) 3-Phase	lbs	(kg)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in ²	3.0	3.1	CFMS718A10	CFMS718A3	CFMS718A11	CFMS718A5	68 (31)
Steel Tank	4.5	3.1	CFMS725J10	CFMS725J3	CFMS725J11	CFMS725J5	78 (36)
3-Steel (3.6 W/cm ²)	6.0	3.2	CFMS733A10	CFMS733A3	CFMS733A11	CFMS733A5	96 (44)
	7.5	3.3	CFMS740J10	CFMS740J3	CFMS740J11	CFMS740J5	100 (46)
	9.0	3.3	CFMS748A10	CFMS748A3	CFMS748A11	CFMS748A5	107 (49)

Applications: Medium Weight Oils, Heat Transfer Oils, Lube Oils, Liquid Paraffin

16 W/in ² ③	2.0	3.1		CFMN718A12		CFMN718A13	68 (31)
Steel Tank	2.5	3.1		CFMN720J12		CFMN720J13	70 (32)
3-Incoloy® (2.6 W/cm ²)	3.0	3.2		CFMN725J12		CFMN725J13	78 (36)
	4.0	3.2		CFMN733A12		CFMN733A13	96 (44)
	5.0	3.3		CFMN740J12		CFMN740J13	100 (46)
	6.0	3.3		CFMN748A12		CFMN748A13	107 (49)

Applications: Bunker C and #6 Fuel Oils

8 W/in ² ③	2.0	3.2		CFMS733A12		CFMS733A13	96 (44)
Steel Tank	3.0	3.3		CFMS748A12		CFMS748A13	107 (49)
3-Steel (1.3 W/cm ²)							

All circulation heaters are Assembly Stock unless otherwise noted.

③ Must be operated 3-phase wye only.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

Tubular and Process Assemblies

Circulation Heaters

4" Flange

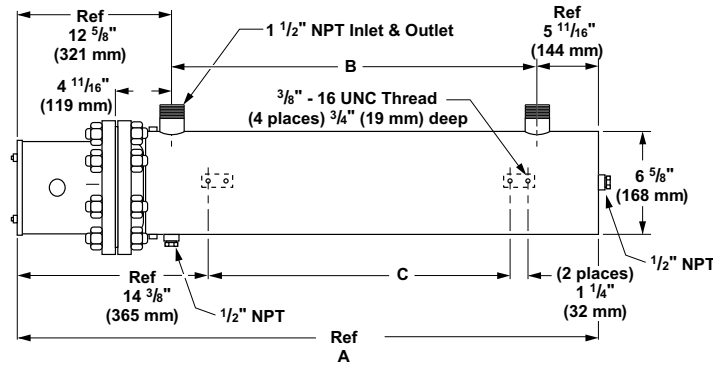
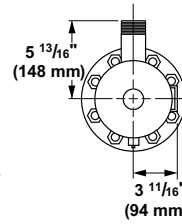


Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
4.1	38 ¹⁵ / ₁₆ (989)	20 ¹ / ₂ (521)	17 (432)
4.2	49 ⁷ / ₁₆ (1256)	31 (787)	27 ¹ / ₂ (699)
4.3	70 ⁷ / ₁₆ (1789)	52 (1321)	48 ¹ / ₂ (1232)
4.4	91 ⁷ / ₁₆ (2326)	73 (1854)	66 (1676)



4" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship. Weight	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	lbs (kg)	

Application: Clean Water

60 W/in ² Steel Tank	12	4.1	CFOC715J10	2	CFOC715J3	1	CFOC715J11	1	CFOC715J5	1	124 (57)
	18	4.1	CFOC721J10	2	CFOC721J3	1	CFOC721J11	1	CFOC721J5	1	127 (58)
6-Copper (9.3 W/cm ²)	24	4.2	CFOC727A10	2	CFOC727A3	2	CFOC727A11	1	CFOC727A5	1	160 (73)
	30	4.2			CFOC732J3	2	CFOC732J11	2	CFOC732J5	1	163 (74)
	36	4.3			CFOC738A3	2	CFOC738A11	2	CFOC738A5	1	229 (104)
	50	4.3							CFOC751A5 ^②	2	234 (107)
60	4.4							CFOC760J5 ^②	2	297 (135)	

Application: Deionized Water, Demineralized Water

60 W/in ² 316 SS Tank	12	4.1	CFOR716A10	1	CFOR716A3	1	CFOR716A11	1	CFOR716A5	1	124 (57)
6-316 SS (9.3 W/cm ²)	18	4.1	CFOR722A10	2	CFOR722A3	1	CFOR722A11	1	CFOR722A5	1	127 (58)
	24	4.2	CFOR727J10	2	CFOR727J3	2	CFOR727J11	1	CFOR727J5	1	160 (73)
Passivated	30	4.2			CFOR733A3	2	CFOR733A11	2	CFOR733A5	1	163 (74)
	36	4.3			CFOR738J3	2	CFOR738J11	2	CFOR738J5	1	229 (104)
	50	4.3							CFOR751J5	2	234 (106)
	60	4.4							CFOR761A5	2	297 (135)

Application: Process Water

48 W/in ² Steel Tank	9	4.1	CFON713J10	1	CFON713J3	1	CFON713J11	1	CFON713J5	1	122 (56)
	12	4.1	CFON718A10	2	CFON718A3	1	CFON718A11	1	CFON718A5	1	125 (57)
6-Incoloy [®] (7.5 W/cm ²)	15	4.1	CFON720J10	2	CFON720J3	1	CFON720J11	2	CFON720J5	1	127 (58)
	18	4.1	CFON725J10	2	CFON725J3	1	CFON725J11	1	CFON725J5	1	160 (73)
24	4.2	CFON733A10	2	CFON733A3	2	CFON733A11	1	CFON733A5	1	163 (74)	
30	4.3			CFON740J3	2	CFON740J11	2	CFON740J5	1	229 (104)	
36	4.3			CFON748A3	2	CFON748A11	2	CFON748A5	1	234 (107)	

CONTINUED

All circulation heaters are Assembly Stock unless otherwise noted.

② Standard

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

Tubular and Process Assemblies

Circulation Heaters

4" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship.	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs	(kg)

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ² ⑤⑥ Steel Tank 6-Incoloy® (3.6 W/cm ²)	6	4.1	CFONA18A10	1	CFONA18A3	1	CFONA18A11	1	CFONA18A5	1	125 (57)
	9	4.1	CFONA25J10	1	CFONA25J3	1	CFONA25J11	1	CFONA25J5	1	160 (73)
	12	4.2	CFONA33A10	2	CFONA33A3	1	CFONA33A11	1	CFONA33A5	1	163 (74)
	15	4.3	CFONA40J10	2	CFONA40J3	1	CFONA40J11	1	CFONA40J5	1	229 (104)
	18	4.3	CFONA48A10	2	CFONA48A3	1	CFONA48A11	1	CFONA48A5	1	234 (107)
	25	4.4			CFONA64J3	2	CFONA64J11	2	CFONA64J5	1	298 (136)
	30	4.4			CFONA77A3	2	CFONA77A11	2	CFONA77A5	1	306 (139)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in ² Steel Tank 6-Steel (3.6 W/cm ²)	6	4.1	CFOS718A10	1	CFOS718A3	1	CFOS718A11	1	CFOS718A5	1	125 (57)
	9	4.1	CFOS725J10	1	CFOS725J3	1	CFOS725J11	1	CFOS725J5	1	160 (73)
	12	4.2	CFOS733A10	2	CFOS733A3	1	CFOS733A11	1	CFOS733A5	1	163 (74)
	15	4.3	CFOS740J10	2	CFOS740J3	1	CFOS740J11	1	CFOS740J5	1	229 (104)
	18	4.3	CFOS748A10	2	CFOS748A3	1	CFOS748A11	1	CFOS748A5	1	234 (107)
	25	4.4			CFOS764J3	2	CFOS764J11	2	CFOS764J5	1	298 (136)
	30	4.4			CFOS777A3	2	CFOS777A11	2	CFOS777A5	1	306 (139)

Applications: Medium Weight Oils, Heat Transfer Oils, Liquid Paraffin

16 W/in ² ③ Steel Tank 6-Incoloy® (2.6 W/cm ²)	3	4.1			CFON713J12	1			CFON713J13	1	122 (56)
	4	4.1			CFON718A12	1			CFON718A13	1	125 (57)
	5	4.1			CFON720J12	1			CFON720J13	1	127 (58)
	6	4.1			CFON725J12	1			CFON725J13	1	160 (73)
	8	4.2			CFON733A12	1			CFON733A13	1	163 (74)
	10	4.3			CFON740J12	2			CFON740J13	1	229 (104)
	12	4.3			CFON748A12	1			CFON748A13	1	234 (107)

Applications: Bunker C and #6 Fuel Oils

8 W/in ² ③ Steel Tank 6-Steel (1.3 W/cm ²)	5	4.3			CFOS740J12	1			CFOS740J13	1	229 (104)
	6	4.3			CFOS748A12	1			CFOS748A13	1	234 (106)
	8	4.4			CFOS764J12	1			CFOS764J13	1	298 (135)
	10	4.4			CFOS777A12	1			CFOS777A13	1	306 (139)

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

③ Must be operated 3-phase wye only.

⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce ½ more kW and watt density.

⑥ Can be wired wye to produce ½ of the original kW and watt density (3-phase only).

Tubular and Process Assemblies

Circulation Heaters

4" 150 lb ANSI Flange—FIREBAR Element

FIREBAR Description	kW	Fig. No.	Code No.				Est. Ship. Weight lbs (kg)
			240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	

Applications: Process Water, Ethylene Glycol (50%)

45 W/in ² Steel Tank 6-Incoloy® (7 W/cm ²)	12.0	4.1	CFONF13G27	1			125 (57)
	15.0	4.1	CFONF16A27	1			128 (58)
	18.0	4.1	CFONF18G27	1			130 (59)
	24.0	4.1	CFONF22R27	2	CFONF22R28	1	133 (61)
	30.0	4.2	CFONF27R27	2	CFONF27R28	1	168 (77)
	36.0	4.2	CFONF32R27	2	CFONF32R28	1	170 (78)
	48.0	4.3			CFONF42G28	2	236 (107)
	60.0	4.3			CFONF51R28	2	240 (109)

Applications: Cooking Oils, Ethylene Glycol (100%)

30 W/in ² Steel Tank 6-Incoloy® (4.7 W/cm ²)	10.0	4.1	CFONF16J12	1	CFONF16J13	1	128 (58)
	13.0	4.1	CFONF19J12	1	CFONF19J13	1	130 (59)
	17.0	4.1	CFONF24J12	1	CFONF24J13	1	133 (61)
	21.0	4.2	CFONF30A12	2	CFONF30A13	1	168 (77)
	25.5	4.2	CFONF35A12	2	CFONF35A13	1	170 (78)
	34.0	4.3	CFONF45J12	2	CFONF45J13	1	236 (107)
	43.0	4.3			CFONF56A13	2	240 (109)

Applications: Heat Transfer Oils, Mineral Oils, Degreasing Solutions

23 W/in ² ④ Steel Tank 6-Incoloy® (3.6 W/cm ²)	7.5	4.1	CFONF16J20	1			128 (58)
	10.0	4.1	CFONF19J20	1			130 (59)
	12.8	4.1	CFONF24J20	1	CFONF24J19	1	133 (61)
	15.8	4.2	CFONF30A20	1	CFONF30A19	1	168 (77)
	19.0	4.2	CFONF35A20	1	CFONF35A19	1	170 (78)
	25.0	4.3	CFONF45J20	2	CFONF45J19	1	236 (107)
	32.3	4.3	CFONF56A20	2	CFONF56A19	1	240 (109)

Applications: Medium Weight Oils, Heat Transfer Oils, Lube Oils, Liquid Paraffin

15 W/in ² ③ Steel Tank 6-Incoloy® (2.3 W/cm ²)	4.0	4.1	CFONF13G29	1			125 (57)
	5.0	4.1	CFONF16A29	1			128 (58)
	6.0	4.1	CFONF18G29	1			130 (59)
	8.0	4.1	CFONF22R29	1	CFONF22R30	1	133 (61)
	10.0	4.2	CFONF27R29	1	CFONF27R30	1	168 (77)
	12.0	4.2	CFONF32R29	1	CFONF32R30	1	170 (78)
	16.0	4.3	CFONF42G29	1	CFONF42G30	1	236 (107)
	20.0	4.3	CFONF51R29	1	CFONF51R30	1	240 (109)

Applications: Bunker C and #6 Fuel Oils, Asphalt

8 W/in ² ③ Steel Tank 6-Incoloy® (1.3 W/cm ²)	2.5	4.1	CFONF16J22	1			128 (58)
	3.25	4.1	CFONF19J22	1			130 (59)
	4.25	4.1	CFONF24J22	1	CFONF24J21	1	133 (61)
	5.25	4.2	CFONF30A22	1	CFONF30A21	1	168 (77)
	6.38	4.2	CFONF35A22	1	CFONF35A21	1	170 (77)
	8.5	4.3	CFONF45J22	1	CFONF45J21	1	236 (107)
	10.75	4.3	CFONF56A22	1	CFONF56A21	1	240 (109)

All circulation heaters are Assembly Stock unless otherwise noted.

③ Must be operated 3-phase wye only.

④ Wired for higher voltage.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

■ Truck Shipment only

Tubular and Process Assemblies

Circulation Heaters

5" Flange

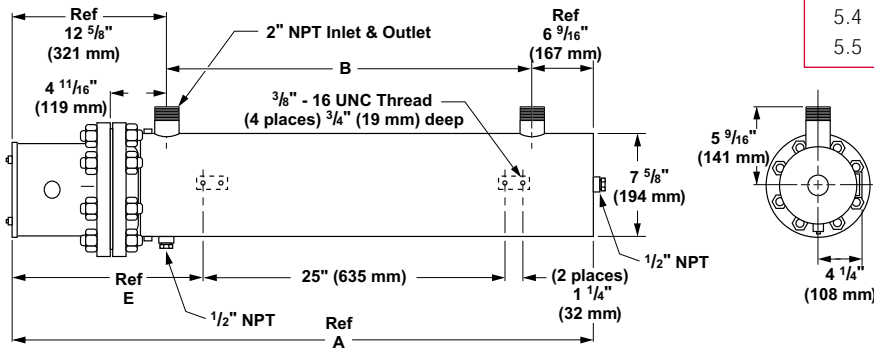


Fig. No.	A Dimension in (mm)	B Dimension in (mm)	E Dimension in (mm)
5.1	49 5/16 (1249)	30 (762)	14 7/8 (378)
5.2	56 3/16 (1427)	37 (940)	18 3/16 (471)
5.3	67 1/16 (1719)	48 1/2 (1232)	24 19/16 (633)
5.4	81 1/16 (2059)	61 7/8 (1572)	30 7/8 (784)
5.5	94 1/16 (2389)	74 7/8 (1902)	37 15/16 (964)

5" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship. Weight	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	lbs	(kg)

Application: Clean Water

60 W/in ² Steel Tank	24	5.1	CFNC727A10	3	CFNC727A3	2	CFNC727A11	3	CFNC727A5	1	140 (64)	
	30	5.1			CFNC732J3	2	CFNC732J11	2	CFNC732J5	1	142 (65)	
	6-Copper (9.3 W/cm ²)	36			5.2	CFNC738A3	2	CFNC738A11	2	CFNC738A5	1	160 (73)
		50			5.3					CFNC751A5	2	180 (82)
	60	5.4					CFNC760J5②	2	190 (87)			
60 W/in ² Steel Tank	36	5.1			CFNC727A3X	3	CFNC727A11X	3	CFNC727A5X	1	145 (66)	
	45	5.1			CFNC732J3X	3	CFNC732J11X	3	CFNC732J5X	3	147 (67)	
9-Copper (9.3 W/cm ²)	54	5.2			CFNC738A3X	3	CFNC738A11X	3	CFNC738A5X	3	166 (76)	
	75	5.3						CFNC751A5X	3	188 (86)		
	90	5.4						CFNC760J5X②	3	200 (91)		

Application: Process Water

48 W/in ² ⑤ Steel Tank	24	5.1	CFNN733A10	3	CFNN733A3	2	CFNN733A11	3	CFNN733A5	1	145 (66)
	30	5.2			CFNN740J3	2	CFNN740J11	2	CFNN740J5	1	167 (76)
	36	5.3			CFNN748A3	2	CFNN748A11	2	CFNN748A5	1	180 (82)
48 W/in ² Steel Tank	36	5.1			CFNN733A3X	3	CFNN733A11X	3	CFNN733A5X	1	150 (68)
	45	5.2			CFNN740J3X	3	CFNN740J11X	3	CFNN740J5X	3	173 (79)
9-Incoloy® (7.5 W/cm ²)	54	5.3			CFNN748A3X	3	CFNN748A11X	3	CFNN748A5X	3	188 (86)

CONTINUED

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

② Standard

⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce 1/3 more kW and watt density.

Tubular and Process Assemblies

Circulation Heaters

5" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship.	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs	(kg)

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in²⑤⑥ Steel Tank 6-Incoloy® (3.6 W/cm ²)	9	5.1	CFNNA25J10	1	CFNNA25J3	1	CFNNA25J11	1	CFNNA25J5	1	140 (64)
	12	5.2	CFNNA33A10	2	CFNNA33A3	1	CFNNA33A11	1	CFNNA33A5	1	145 (66)
	15	5.2	CFNNA40J10	2	CFNNA40J3	1	CFNNA40J11	1	CFNNA40J5	1	167 (76)
	18	5.3	CFNNA48A10	2	CFNNA48A3	1	CFNNA48A11	1	CFNNA48A5	1	180 (82)
	25	5.4			CFNNA64J3	2	CFNNA64J11	2	CFNNA64J5	1	195 (89)
	30	5.5			CFNNA77A3	2	CFNNA77A11	2	CFNNA77A5	1	220 (100)
23 W/in² Steel Tank 9-Incoloy® (3.6 W/cm ²)	14	5.1	CFNNA25J10X	3	CFNNA25J3X	1	CFNNA25J11X	1	CFNNA25J5X	1	140 (66)
	18	5.2	CFNNA33A10X	3	CFNNA33A3X	1	CFNNA33A11X	1	CFNNA33A5X	1	145 (68)
	23	5.2	CFNNA40J10X	3	CFNNA40J3X	3	CFNNA40J11X	1	CFNNA40J5X	1	167 (79)
	27	5.3	CFNNA48A10X	3	CFNNA48A3X	3	CFNNA48A11X	3	CFNNA48A5X	1	180 (86)
	38	5.4			CFNNA64J3X	3	CFNNA64J11X	3	CFNNA64J5X	1	195 (94)
	45	5.5			CFNNA77A3X	3	CFNNA77A11X	3	CFNNA77A5X	3	220 (106)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in² Steel Tank 6-Steel (3.6 W/cm ²)	12	5.2	CFNS733A10	2	CFNS733A3	1	CFNS733A11	1	CFNS733A5	1	145 (66)
	15	5.2	CFNS740J10	2	CFNS740J3	1	CFNS740J11	1	CFNS740J5	1	167 (76)
	18	5.3	CFNS748A10	2	CFNS748A3	3	CFNS748A11	1	CFNS748A5	1	180 (82)
	25	5.4			CFNS764J3	2	CFNS764J11	2	CFNS764J5	1	195 (89)
	30	5.5			CFNS777A3	2	CFNS777A11	2	CFNS777A5	1	220 (100)
23 W/in² Steel Tank 9-Steel (3.6 W/cm ²)	18	5.2	CFNS733A10X	3	CFNS733A3X	1	CFNS733A11X	1	CFNS733A5X	1	150 (68)
	23	5.2	CFNS740J10X	3	CFNS740J3X	3	CFNS740J11X	1	CFNS740J5X	1	173 (79)
	27	5.3	CFNS748A10X	3	CFNS748A3X	1	CFNS748A11X	3	CFNS748A5X	1	188 (86)
	38	5.4			CFNS764J3X	3	CFNS764J11X	3	CFNS764J5X	1	206 (94)
	45	5.5			CFNS777A3X	3	CFNS777A11X	3	CFNS777A5X	3	233 (106)

Applications: Medium Weight Oils, Heat Transfer Oils, Liquid Paraffin

16 W/in²③ Steel Tank 6-Incoloy® (2.6 W/cm ²)	8	5.1			CFNN733A12	1			CFNN733A13	1	145 (66)
	10	5.2			CFNN740J12	1			CFNN740J13	1	167 (76)
	12	5.3			CFNN748A12	1			CFNN748A13	1	180 (82)
16 W/in²③ Steel Tank 9-Incoloy® (2.6 W/cm ²)	12	5.1			CFNN733A12X	1			CFNN733A13X	1	150 (68)
	15	5.2			CFNN740J12X	1			CFNN740J13X	1	173 (79)
	18	5.3			CFNN748A12X	1			CFNN748A13X	1	188 (86)

Applications: Bunker C and #6 Fuel Oils

8 W/in²③ Steel Tank 6-Steel (1.3 W/cm ²)	5	5.2			CFNS740J12	1			CFNS740J13	1	167 (76)
	6	5.3			CFNS748A12	1			CFNS748A13	1	180 (82)
	8	5.4			CFNS764J12	1			CFNS764J13	1	195 (89)
	10	5.5			CFNS777A12	1			CFNS777A13	1	220 (100)
8 W/in²③ Steel Tank 9-Steel (1.3 W/cm ²)	7.5	5.2			CFNS740J12X	1			CFNS740J13X	1	173 (79)
	9	5.3			CFNS748A12X	1			CFNS748A13X	1	188 (86)
	12	5.4			CFNS764J12X	1			CFNS764J13X	1	206 (94)
	15	5.5			CFNS777A12X	1			CFNS777A13X	1	233 (106)

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

③ Must be operated 3-phase wye only.

⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce ½ more kW and watt density.

⑥ Can be wired wye to produce ⅓ of the original kW and watt density (3-phase only).

Tubular and Process Assemblies

Circulation Heaters

6" Flange

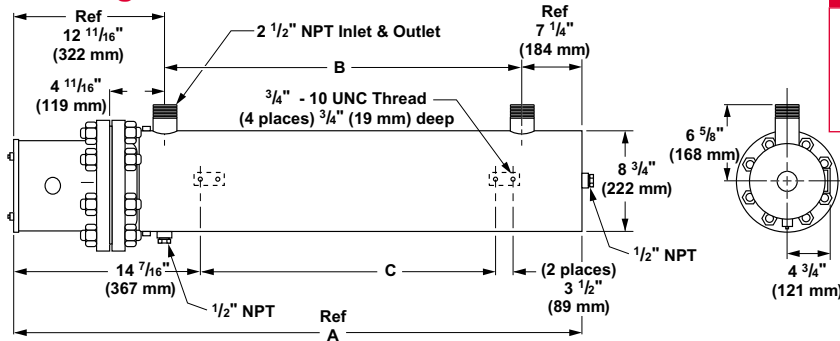


Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
6.1	40 ¹⁵ / ₁₆ (1027)	20 ¹ / ₂ (521)	17 (432)
6.2	50 ¹⁵ / ₁₆ (1294)	31 (787)	27 ¹ / ₂ (699)
6.3	71 ¹⁵ / ₁₆ (1827)	52 (1321)	48 ¹ / ₂ (1232)
6.4	92 ¹⁵ / ₁₆ (2361)	73 (1854)	66 (1676)

6" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship.	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs	(kg)

Application: Clean Water

60 W/in ² Steel Tank 12-Copper (9.3 W/cm ²)	24	6.1	CFPC715G10	3	CFPC715G3	2	CFPC715G11	2	CFPC715G5	1	212 (97)
	36	6.1	CFPC721G10	4	CFPC721G3	2	CFPC721G11	2	CFPC721G5	1	217 (99)
	48	6.2			CFPC726R3	4	CFPC726R11	3	CFPC726R5	2	222 (101)
	60	6.2			CFPC732G3	4	CFPC732G11	3	CFPC732G5	2	226 (103)
	72	6.3			CFPC737R3	4			CFPC737R5	2	290 (132)
	100	6.3							CFPC750R5	4	298 (136)
120	6.4							CFPC760G5	4	360 (164)	
60 W/in ² Steel Tank 15-Copper (9.3 W/cm ²)	30	6.1	CFPC715G10X	3	CFPC715G3X	5	CFPC715G11X	3	CFPC715G5X	1	215 (98)
	45	6.1	CFPC721G10X	5	CFPC721G3X	5	CFPC721G11X	3	CFPC721G5X	5	223 (102)
	60	6.2			CFPC726R3X	5	CFPC726R11X	3	CFPC726R5X	5	226 (103)
	75	6.2			CFPC732G3X	5	CFPC732G11X	5	CFPC732G5X	5	288 (131)
	90	6.3			CFPC737R3X	5			CFPC737R5X	5	296 (134)
	125	6.3							CFPC750R5X	5	306 (139)
150	6.4							CFPC760G5X ^②	5	370 (168)	

Application: Deionized Water, Demineralized Water

60 W/in ² 316 SS Tank 12-316 SS (9.3 W/cm ²)	24	6.1	CFPR715N10	3	CFPR715N3	2	CFPR715N11	2	CFPR715N5	1	212 (97)
	36	6.1	CFPR721N10	4	CFPR721N3	2	CFPR721N11	3	CFPR721N5	1	217 (99)
	48	6.2			CFPR727E3	4	CFPR727E11	3	CFPR727E5	2	222 (101)
	60	6.2			CFPR732N3	4	CFPR732N11	3	CFPR732N5	2	226 (103)
	72	6.3			CFPR738E3	4			CFPR738E5	2	290 (132)
	100	6.3							CFPR751E5	4	298 (136)
120	6.4							CFPR760N5	4	360 (164)	
60 W/in ² 316 SS Tank 15-316 SS (9.3 W/cm ²)	30	6.1	CFPR715N10X	3	CFPR715N3X	5	CFPR715N11X	3	CFPR715N5X	1	215 (98)
	45	6.1	CFPR721N10X	5	CFPR721N3X	5	CFPR721N11X	3	CFPR721N5X	5	223 (102)
	60	6.2			CFPR727E3X	5	CFPR727E11X	3	CFPR727E5X	5	226 (103)
	75	6.2			CFPR732N3X	5	CFPR732N11X	5	CFPR732N5X	5	288 (131)
	90	6.3			CFPR738E3X	5			CFPR738E5X	5	296 (135)
	125	6.3							CFPR751E5X	5	306 (139)
150	6.4							CFPR760N5X	5	370 (168)	

CONTINUED

All circulation heaters are Assembly Stock unless otherwise noted. ② Standard

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

Tubular and Process Assemblies

Circulation Heaters

6" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship.	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs	(kg)

Application: Process Water

48 W/in² Steel Tank 12-Incoloy® (7.5 W/cm ²)	18	6.1	CFPN713G10	2	CFPN713G3	1	CFPN713G11	1	CFPN713G5	1	212 (97)
	24	6.1	CFPN717R10	3	CFPN717R3	2	CFPN717R11	2	CFPN717R5	1	214 (97)
	30	6.1	CFPN720G10	3	CFPN720G3	2	CFPN720G11	2	CFPN720G5	1	217 (99)
	36	6.1	CFPN725G10	4	CFPN725G3	2	CFPN725G11	2	CFPN725G5	1	222 (101)
	48	6.2			CFPN732R3	4	CFPN732R11	3	CFPN732R5	2	226 (103)
	60	6.3			CFPN740G3	4	CFPN740G11	3	CFPN740G5	2	290 (132)
	72	6.3			CFPN747R3	4			CFPN747R5	2	298 (136)
48 W/in² Steel Tank 15-Incoloy® (7.5 W/cm ²)	23	6.1	CFPN713G10X	3	CFPN713G3X	5	CFPN713G11X	1	CFPN713G5X	1	215 (98)
	30	6.1	CFPN717R10X	3	CFPN717R3X	5	CFPN717R11X	3	CFPN717R5X	1	217 (99)
	38	6.1	CFPN720G10X	5	CFPN720G3X	5	CFPN720G11X	3	CFPN720G5X	1	223 (102)
	45	6.1	CFPN725G10X	5	CFPN725G3X	5	CFPN725G11X	3	CFPN725G5X	5	226 (103)
	60	6.2			CFPN732R3X	5	CFPN732R11X	3	CFPN732R5X	5	288 (131)
	75	6.3			CFPN740G3X	5	CFPN740G11X	5	CFPN740G5X	5	296 (135)
	90	6.3			CFPN747R3X	5			CFPN747R5X	5	306 (139)

Circulation Heaters

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in² Steel Tank 12-Incoloy® (3.6 W/cm ²)	12	6.1	CFPNA17R10	2	CFPNA17R3	1	CFPNA17R11	1	CFPNA17R5	1	214 (97)
	18	6.1	CFPNA25G10	2	CFPNA25G3	1	CFPNA25G11	1	CFPNA25G5	1	222 (101)
	24	6.2	CFPNA32R10	3	CFPNA32R3	2	CFPNA32R11	2	CFPNA32R5	1	226 (103)
	30	6.3	CFPNA40G10	3	CFPNA40G3	2	CFPNA40G11	2	CFPNA40G5	1	290 (132)
	36	6.3	CFPNA47R10	4	CFPNA47R3	2	CFPNA47R11	2	CFPNA47R5	1	298 (136)
	50	6.4			CFPNA64G3	4	CFPNA64G11	3	CFPNA64G5	2	360 (164)
	60	6.4			CFPNA76R3	4	CFPNA76R11	3	CFPNA76R5	2	368 (167)
23 W/in² Steel Tank 15-Incoloy® (3.6 W/cm ²)	15	6.1	CFPNA17R10X	3	CFPNA17R3X	1	CFPNA17R11X	1	CFPNA17R5X	1	217 (99)
	23	6.1	CFPNA25G10X	3	CFPNA25G3X	5	CFPNA25G11X	1	CFPNA25G5X	1	226 (103)
	30	6.2	CFPNA32R10X	3	CFPNA32R3X	5	CFPNA32R11X	3	CFPNA32R5X	1	288 (131)
	38	6.3	CFPNA40G10X	5	CFPNA40G3X	5	CFPNA40G11X	3	CFPNA40G5X	1	296 (135)
	45	6.3	CFPNA47R10X	5	CFPNA47R3X	5	CFPNA47R11X	3	CFPNA47R5X	5	306 (139)
	63	6.4			CFPNA64G3X	5	CFPNA64G11X	3	CFPNA64G5X	5	370 (168)
	75	6.4			CFPNA76R3X	5	CFPNA76R11X	5	CFPNA76R5X	5	381 (173)

CONTINUED

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

- ⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce 1/3 more kW and watt density.
- ⑥ Can be wired wye to produce 1/3 of the original kW and watt density (3-phase only).

Tubular and Process Assemblies

Circulation Heaters

6" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship.	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs	(kg)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in² Steel Tank 12-Steel (3.6 W/cm ²)	12	6.1	CFPS717R10	2	CFPS717R3	1	CFPS717R11	1	CFPS717R5	1	214 (97)
	18	6.1	CFPS725G10	2	CFPS725G3	1	CFPS725G11	1	CFPS725G5	1	222 (101)
	24	6.2	CFPS732R10	3	CFPS732R3	2	CFPS732R11	2	CFPS732R5	1	226 (103)
	30	6.3	CFPS740G10	3	CFPS740G3	2	CFPS740G11	2	CFPS740G5	1	290 (132)
	36	6.3	CFPS747R10	4	CFPS747R3	2	CFPS747R11	2	CFPS747R5	1	298 (136)
23 W/in² Steel Tank 15-Steel (3.6 W/cm ²)	50	6.4			CFPS764G3	4	CFPS764G11	3	CFPS764G5	2	360 (164)
	60	6.4			CFPS776R3	4	CFPS776R11	3	CFPS776R5	2	368 (167)
	15	6.1	CFPS717R10X	3	CFPS717R3X	1	CFPS717R11X	1	CFPS717R5X	1	217 (99)
	23	6.1	CFPS725G10X	3	CFPS725G3X	5	CFPS725G11X	1	CFPS725G5X	1	226 (103)
	30	6.2	CFPS732R10X	3	CFPS732R3X	5	CFPS732R11X	3	CFPS732R5X	1	288 (131)
15-Steel (3.6 W/cm ²)	38	6.3	CFPS740G10X	5	CFPS740G3X	5	CFPS740G11X	3	CFPS740G5X	1	296 (135)
	45	6.3	CFPS747R10X	5	CFPS747R3X	5	CFPS747R11X	3	CFPS747R5X	5	306 (139)
	63	6.4			CFPS764G3X	5	CFPS764G11X	3	CFPS764G5X	5	370 (168)
	75	6.4			CFPS776R3X	5	CFPS776R11X	5	CFPS776R5X	5	381 (173)

Applications: Medium Weight Oils, Heat Transfer Oils, Liquid Paraffin

16 W/in² Steel Tank 12-Incoloy® (2.6 W/cm ²)	6	6.1			CFPN713G12	1			CFPN713G13	1	212 (97)
	8	6.1			CFPN717R12	1			CFPN717R13	1	214 (97)
	10	6.1			CFPN720G12	1			CFPN720G13	1	217 (99)
	12	6.1			CFPN725G12	1			CFPN725G13	1	222 (101)
	16	6.2			CFPN732R12	1			CFPN732R13	1	226 (103)
16 W/in² Steel Tank 15-Incoloy® (2.6 W/cm ²)	20	6.3			CFPN740G12	2			CFPN740G13	1	290 (132)
	24	6.3			CFPN747R12	2			CFPN747R13	1	298 (136)
	7.5	6.1			CFPN713G12X	1			CFPN713G13X	1	215 (98)
	10	6.1			CFPN717R12X	1			CFPN717R13X	1	217 (99)
	12.5	6.1			CFPN720G12X	1			CFPN720G13X	1	223 (102)
15-Incoloy® (2.6 W/cm ²)	15	6.1			CFPN725G12X	1			CFPN725G13X	1	226 (103)
	20	6.2			CFPN732R12X	5			CFPN732R13X	1	288 (131)
	25	6.3			CFPN740G12X	5			CFPN740G13X	1	296 (135)
	30	6.3			CFPN747R12X	5			CFPN747R13X	1	306 (139)

Applications: Bunker C and #6 Fuel Oils

8 W/in² Steel Tank 12-Steel (1.3 W/cm ²)	8	6.2			CFPS732R12	1			CFPS732R13	1	226 (103)
	10	6.3			CFPS740G12	1			CFPS740G13	1	290 (132)
	12	6.3			CFPS747R12	1			CFPS747R13	1	298 (136)
	16.5	6.4			CFPS764G12	1			CFPS764G13	1	360 (164)
	20	6.4			CFPS776R12	1			CFPS776R13	1	368 (167)
8 W/in² Steel Tank 15-Steel (1.3 W/cm ²)	10	6.2			CFPS732R12X	1			CFPS732R13X	1	288 (131)
	12.5	6.3			CFPS740G12X	1			CFPS740G13X	1	296 (135)
	15	6.3			CFPS747R12X	1			CFPS747R13X	1	306 (139)
	21	6.4			CFPS764G12X	5			CFPS764G13X	1	370 (168)
	25	6.4			CFPS776R12X	5			CFPS776R13X	1	381 (173)

All circulation heaters are Assembly Stock unless otherwise noted.

③ Must be operated 3-phase wye only.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

Tubular and Process Assemblies

Circulation Heaters

6" 150 lb ANSI Flange—FIREBAR Element

FIREBAR Description	kW	Fig. No.	Code No.				Est. Ship.	
			240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs	(kg)

Applications: Process Water, Ethylene Glycol (50%)

45 W/in ² Steel Tank 15-Incoloy® (7 W/cm ²)	30	6.1	CFPNF13G27	5			217 (99)
	37.5	6.1	CFPNF16A27	5			220 (100)
	45	6.1	CFPNF18G27	5			223 (102)
	60	6.1	CFPNF22R27	5	CFPNF22R28	5	226 (103)
	75	6.2	CFPNF27R27	5	CFPNF27R28	5	232 (106)
	90	6.2	CFPNF32R27	5	CFPNF32R28	5	236 (107)
	120	6.3			CFPNF42G28	5	304 (138)
	150	6.3			CFPNF51R28	5	314 (143)

Applications: Cooking Oils, Ethylene Glycol (100%)

30 W/in ² Steel Tank 15-Incoloy® (4.7 W/cm ²)	25	6.1	CFPNF16J12	5	CFPNF16J13	5	220 (100)
	32	6.1	CFPNF19J12	5	CFPNF19J13	5	223 (102)
	42	6.1	CFPNF24J12	5	CFPNF24J13	5	226 (103)
	52	6.2	CFPNF30A12	5	CFPNF30A13	5	232 (106)
	64	6.2	CFPNF35A12	5	CFPNF35A13	5	236 (107)
	85	6.3	CFPNF45J12	5	CFPNF45J13	5	304 (138)
	110	6.3			CFPNF56A13	5	314 (143)

Applications: Heat Transfer Oils, Mineral Oil, Degreasing Solutions

23 W/in ² Steel Tank 15-Incoloy® (3.6 W/cm ²)	19	6.1	CFPNF16J20	5			220 (100)
	24	6.1	CFPNF19J20	5			223 (102)
	32	6.1	CFPNF24J20	5	CFPNF24J19	5	226 (103)
	40	6.2	CFPNF30A20	5	CFPNF30A19	5	232 (106)
	48	6.2	CFPNF35A20	5	CFPNF35A19	5	236 (107)
	64	6.3	CFPNF45J20	5	CFPNF45J19	5	304 (138)
	80	6.3	CFPNF56A20	5	CFPNF56A19	5	314 (143)

Applications: Medium Weight Oils, Heat Transfer Oils, Lube Oils, Liquid Paraffin

15 W/in ² Steel Tank 15-Incoloy® (2.3 W/cm ²)	10	6.1	CFPNF13G29	5			217 (99)
	12.5	6.1	CFPNF16A29	5			220 (100)
	15	6.1	CFPNF18G29	5			223 (102)
	20	6.1	CFPNF22R29	5	CFPNF22R30	5	226 (103)
	25	6.2	CFPNF27R29	5	CFPNF27R30	5	232 (106)
	30	6.2	CFPNF32R29	5	CFPNF32R30	5	236 (107)
	40	6.3	CFPNF42G29	5	CFPNF42G30	5	304 (138)
	50	6.3	CFPNF51R29	5	CFPNF51R30	5	314 (143)

Applications: Bunker C and #6 Fuel Oils, Asphalt

8 W/in ² Steel Tank 15-Incoloy® (1.3 W/cm ²)	6.3	6.1	CFPNF16J22	5			220 (100)
	8.1	6.1	CFPNF19J22	5			223 (102)
	10.6	6.1	CFPNF24J22	5	CFPNF24J21	5	226 (103)
	13.1	6.2	CFPNF30A22	5	CFPNF30A21	5	232 (106)
	16	6.2	CFPNF35A22	5	CFPNF35A21	5	236 (107)
	21.3	6.3	CFPNF45J22	5	CFPNF45J21	5	304 (138)
	26	6.3	CFPNF56A22	5	CFPNF56A21	5	314 (143)

All circulation heaters are Assembly Stock unless otherwise noted.

③ Must be operated 3-phase wye only.

④ Wired for higher voltage.

Availability

Assembly Stock: Five to seven working days

Truck Shipment only

Tubular and Process Assemblies

Circulation Heaters

8" Flange

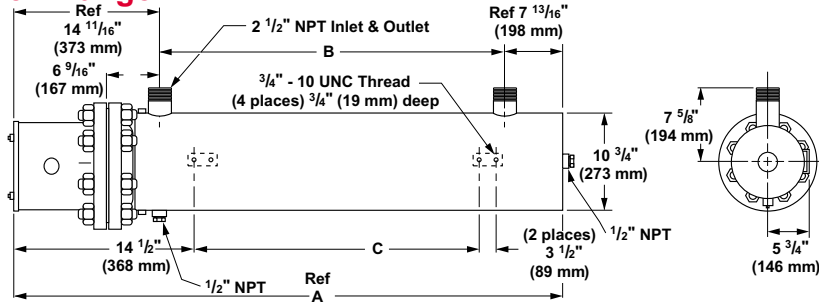


Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
7.1	47 ¹ / ₁₆ (1199)	24 ¹ / ₁₆ (627)	21 ³ / ₁₆ (538)
7.2	55 ¹ / ₁₆ (1402)	32 ¹ / ₁₆ (830)	29 ⁷ / ₁₆ (741)
7.3	62 ³ / ₁₆ (1580)	39 ¹ / ₁₆ (1008)	36 ⁵ / ₁₆ (919)
7.4	69 ¹ / ₁₆ (1773)	47 ⁵ / ₁₆ (1202)	43 ¹ / ₁₆ (1113)
7.5	79 ³ / ₁₆ (2014)	56 ¹ / ₁₆ (1443)	53 ³ / ₁₆ (1354)
7.6	88 ³ / ₁₆ (2243)	65 ¹ / ₁₆ (1672)	62 ³ / ₁₆ (1583)
7.7	98 ³ / ₁₆ (2497)	75 ¹ / ₁₆ (1926)	72 ³ / ₁₆ (1837)

8" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship. Weight (kg)
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	

Application: Clean Water

60 W/in ² Steel Tank 18-Copper (9.3 W/cm ²)	50	7.1			CFRC721N3②	3	CFRC721N11	3	CFRC721N5	2	340 (155)
	75	7.2			CFRC729N3②	6			CFRC729N5②	2	360 (164)
	100	7.3			CFRC737E3②	6			CFRC737E5	3	385 (175)
	125	7.4			CFRC745E3②	6			CFRC745E5②	3	410 (186)
	150	7.5							CFRC752N5②	6	440 (200)
	175	7.6							CFRC760N5②	6	465 (211)
	200	7.7							CFRC768E5②	6	510 (232)

Application: Process Water

48 W/in ² ⑤ Steel Tank 18-Incoloy® (7.5 W/cm ²)	50	7.2			CFRN725N3②	3	CFRN725N11②	3	CFRN725N5②	2	350 (159)
	75	7.3			CFRN735N3②	6			CFRN735N5②	2	380 (173)
	100	7.4			CFRN744E3	6			CFRN744E5	3	410 (186)
	125	7.5			CFRN754M3②	6			CFRN754M5②	6	445 (202)
	150	7.6							CFRN763M5②	6	490 (223)
	175	7.7							CFRN773D5	6	530 (241)
	200	7.7							CFRN782M5②	6	560 (254)
48 W/in ² Steel Tank 24-Incoloy® (7.5 W/cm ²)	67	7.2			CFRN726D3X②	4	CFRN726D11X②	3	CFRN726D5X②	2	358 (163)
	100	7.3			CFRN736D3X②	8			CFRN736D5X②	4	392 (178)
	133	7.4			CFRN744M3X②	8			CFRN744M5X②	4	425 (193)
	167	7.5			CFRN754M3X②	8			CFRN754M5X②	8	463 (210)
	200	7.6							CFRN763M5X②	8	511 (232)
	233	7.7							CFRN773D5X	8	554 (252)
	267	7.7							CFRN782M5X②	8	587 (267)

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ² ⑤⑥ Steel Tank 18-Incoloy® (3.6 W/cm ²)	30	7.2	CFRNA32N10②	3	CFRNA32N3②	2	CFRNA32N11②	2	CFRNA32N5②	1	370 (168)
	40	7.3			CFRNA43E3②	3	CFRNA43E11②	2	CFRNA43E5②	2	410 (186)
	50	7.4			CFRNA51M3②	3	CFRNA51M11	3	CFRNA51M5	2	440 (200)
23 W/in ² Steel Tank 24-Incoloy® (3.6 W/cm ²)	40	7.2	CFRNA33D10X②	4	CFRNA33D3X②	4	CFRNA33D11X②	2	CFRNA33D5X②	2	382 (174)
	53	7.3			CFRNA43M3X②	4	CFRNA43M11X②	3	CFRNA43M5X②	2	425 (193)
	67	7.4			CFRNA51M3X②	4	CFRNA51M11X②	3	CFRNA51M5X②	2	457 (207)

CONTINUED

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

Truck Shipment only

② Standard

⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce 1/2 more kW and watt density.

⑥ Can be wired wye to produce 1/2 of the original kW and watt density (3-phase only).

Tubular and Process Assemblies

Circulation Heaters

8" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.								Est. Ship. Weight	
			240V~(ac) 1-Phase	No. of Circuits	240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 1-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	lbs	(kg)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in² Steel Tank 18-Steel (3.6 W/cm ²)	30.0	7.2	CFRS732N10 ^②	3	CFRS732N3 ^②	2	CFRS732N11 ^②	2	CFRS732N5 ^②	1	370 (168)
	40.0	7.3			CFRS743E3 ^②	3	CFRS743E11 ^②	2	CFRS743E5	2	410 (186)
	50.0	7.4			CFRS751M3	3	CFRS751M11	3	CFRS751M5	2	440 (200)
	60.0	7.5			CFRS762D3 ^②	6	CFRS762D11 ^②	3	CFRS762D5 ^②	2	480 (218)
	70.0	7.6			CFRS770M3 ^②	6	CFRS770M11	6	CFRS770M5	2	530 (241)
	80.0	7.7			CFRS779M3 ^②	6			CFRS779M5 ^②	3	610 (277)
23 W/in² Steel Tank 24-Steel (3.6 W/cm ²)	40.0	7.2	CFRS733D10X ^②	4	CFRS733D3X ^②	4	CFRS733D11X ^②	2	CFRS733D5X ^②	2	382 (174)
	53.0	7.3			CFRS743M3X ^②	4	CFRS743M11X ^②	3	CFRS743M5X ^②	2	425 (193)
	67.0	7.4			CFRS751M3X ^②	4	CFRS751M11X ^②	3	CFRS751M5X ^②	2	457 (208)
	80.0	7.5			CFRS762D3X ^②	8	CFRS762D11X ^②	4	CFRS762D5X ^②	4	461 (209)
	93.0	7.6			CFRS770M3X ^②	8	CFRS770M11X ^②	6	CFRS770M5X ^②	4	554 (252)
	107.0	7.7			CFRS779M3X ^②	8			CFRS779M5X ^②	4	636 (289)

Applications: Medium Weight Oils, Heat Transfer Oils, Liquid Paraffin

16 W/in² Steel Tank 18-Incoloy [®] (2.6 W/cm ²)	17.0	7.2			CFRN725N12 ^②	1			CFRN725N13 ^②	1	350 (159)
	25.0	7.3			CFRN735N12 ^②	2			CFRN735N13 ^②	1	380 (173)
	33.0	7.4			CFRN744E12 ^②	2			CFRN744E13	1	410 (186)
	42.0	7.5			CFRN754M12 ^②	3			CFRN754M13 ^②	2	445 (202)
	50.0	7.6							CFRN763M13 ^②	2	490 (223)
	58.0	7.7							CFRN773D13	2	530 (241)
16 W/in² Steel Tank 24-Incoloy [®] (2.6 W/cm ²)	67.0	7.7			CFRN782M13 ^②	2	560 (254)				
	23.0	7.2			CFRN726D12X ^②	2			CFRN726D13X ^②	1	358 (163)
	33.0	7.3			CFRN736D12X ^②	2			CFRN736D13X ^②	1	392 (178)
	44.0	7.4			CFRN744M12X ^②	4			CFRN744M13X ^②	2	425 (193)
	56.0	7.5			CFRN754M12X ^②	4			CFRN754M13X ^②	2	463 (210)
	67.0	7.6							CFRN763M13X ^②	2	511 (232)
77.0	7.7					CFRN773D13X ^②			2	554 (252)	
89.0	7.7			CFRN782M13X ^②	4	587 (267)					

Applications: Bunker C and #6 Fuel Oils

8 W/in² Steel Tank 18-Steel (1.3 W/cm ²)	12.5	7.3			CFRS743E12 ^②	1			CFRS743E13 ^②	1	410 (186)
	16.5	7.4			CFRS751M12	1			CFRS751M13	1	440 (200)
	20.0	7.5			CFRS762D12 ^②	2			CFRS762D13 ^②	1	480 (218)
	24.0	7.6			CFRS770M12	2			CFRS770M13	1	530 (241)
	27.0	7.7			CFRS779M12 ^②	2			CFRS779M13 ^②	1	610 (277)
8 W/in² Steel Tank 24-Steel (1.3 W/cm ²)	17.0	7.3			CFRS743M12X ^②	1			CFRS743M13X ^②	1	425 (193)
	22.0	7.4			CFRS751M12X ^②	2			CFRS751M13X ^②	1	457 (208)
	27.0	7.5			CFRS762D12X ^②	2			CFRS762D13X ^②	1	461 (209)
	32.0	7.6			CFRS770M12X ^②	2			CFRS770M13X ^②	1	554 (252)
	36.0	7.7			CFRS779M12X ^②	2			CFRS779M13X ^②	1	636 (289)

All circulation heaters are Assembly Stock unless otherwise noted.

② Standard

③ Must be operated 3-phase wye only.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

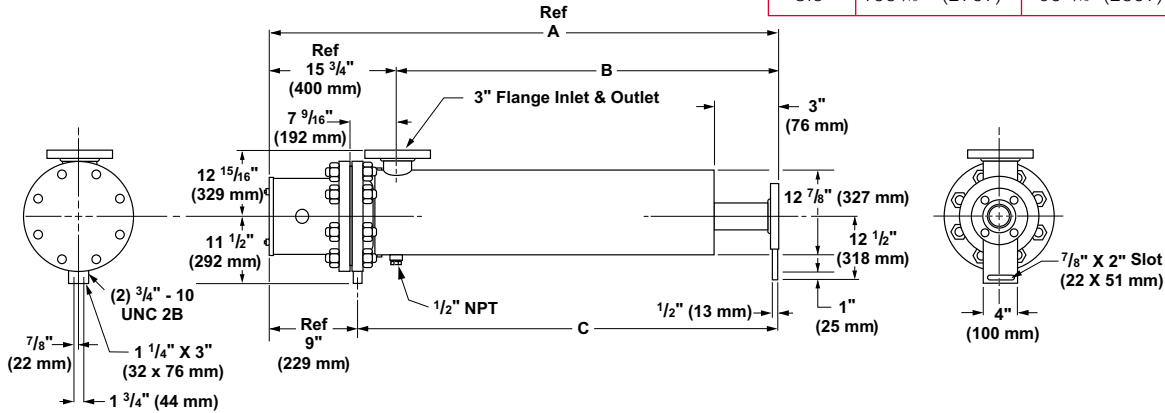
Truck Shipment only

Tubular and Process Assemblies

Circulation Heaters

10" Flange

Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
8.1	76 ⁹ / ₁₆ (1945)	60 ¹³ / ₁₆ (1545)	67 ⁹ / ₁₆ (1716)
8.2	84 ¹ / ₁₆ (2135)	68 ⁵ / ₁₆ (1735)	75 ¹ / ₁₆ (1907)
8.3	91 ³ / ₁₆ (2316)	75 ¹ / ₁₆ (1916)	82 ³ / ₁₆ (2088)
8.4	99 ¹ / ₁₆ (2516)	83 ⁵ / ₁₆ (2116)	90 ¹ / ₁₆ (2288)
8.5	106 ⁹ / ₁₆ (2707)	90 ¹³ / ₁₆ (2307)	97 ⁹ / ₁₆ (2478)



10" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.				Est. Ship.	
			240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs (kg)	

Application: Process Water

48 W/in ² ⑤ Steel Tank 27-Incoloy® (7.5 W/cm ²)	262	8.5			CFSSN773E5	9	600 (273)
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Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ² ⑤⑥ Steel Tank 27-Incoloy® (3.6 W/cm ²)	60	8.1	CFSNA43N3②	3	CFSNA43N5②	3	515 (234)
	75	8.2	CFSNA51N3②	9	CFSNA51N5	3	530 (241)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in ² Steel Tank 27-Steel (3.6 W/cm ²)	90	8.3			CFSS762E5②	3	540 (245)
	105	8.4			CFSS770N5	3	600 (272)
	120	8.5			CFSS778N5②	3	645 (293)

Applications: Medium Weight Oils, Heat Transfer Oils, Liquid Paraffin

16 W/in ² ③ Steel Tank 27-Incoloy® (2.6 W/cm ²)	75	8.3			CFSSN763N13②	3	540 (245)
	87	8.5			CFSSN773E13②	3	600 (273)

Applications: Bunker C and #6 Fuel Oils

8 W/in ² ③ Steel Tank 27-Steel (1.3 W/cm ²)	30	8.3	CFSS762E12②	3	CFSS762E13②	1	540 (245)
	35	8.4	CFSS770N12	3	CFSS770N13	1	600 (273)
	40	8.5	CFSS778N12②	3	CFSS778N13②	1	645 (293)

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

■ Truck Shipment only

② Standard

③ Must be operated 3-phase wye only.

⑤ 240V~(ac) can be wired wye and operated at 480V~(ac) 3-phase to produce 1/2 more kW and watt density.

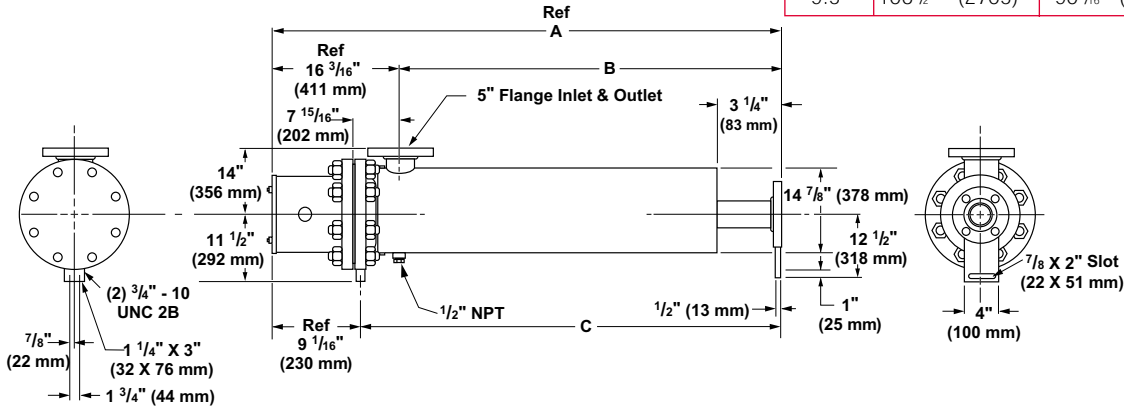
⑥ Can be wired wye to produce 1/2 of the original kW and watt density (3-phase only).

Tubular and Process Assemblies

Circulation Heaters

12" Flange

Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
9.1	76 7/8 (1953)	60 11/16 (1541)	67 13/16 (1722)
9.2	84 3/8 (2143)	68 3/8 (1732)	75 5/8 (1913)
9.3	91 1/8 (2334)	75 11/16 (1922)	82 13/16 (2103)
9.4	99 (2515)	82 13/16 (2103)	89 15/16 (2284)
9.5	106 1/2 (2705)	90 5/8 (2294)	97 7/8 (2475)



Circulation Heaters

12" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.				Est. Ship. Weight	
			240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	lbs	(kg)

Application: Process Water

48 W/in ² Steel Tank 36-Incoloy® (7.5 W/in ²)	350	9.5			CFTN773C5	12	650 (295)
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Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ² Steel Tank 36-Incoloy® (3.6 W/cm ²)	80	9.1			CFTNA43L5②	3	565 (257)
	100	9.2			CFTNA51L5	3	585 (266)

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in ² Steel Tank 36-Steel (3.6 W/cm ²)	140	9.4			CFTS770L5	4	650 (295)
	160	9.5			CFTS778L5②	4	700 (318)

Applications: Medium Weight Oils, Heat Transfer Oils, Liquid Paraffin

16 W/in ² ③ Steel Tank 36-Incoloy® (2.6 W/cm ²)	117	9.5			CFTN773C13②	3	650 (295)
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Applications: Bunker C and #6 Fuel Oils

8 W/in ² ③ Steel Tank 36-Steel (1.3 W/cm ²)	47	9.4	CFTS770L12②	3	CFTS770L13	2	700 (318)
	54	9.5	CFTS778L12②	3	CFTS778L13②	2	750 (341)

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

■ Truck Shipment only

② Standard

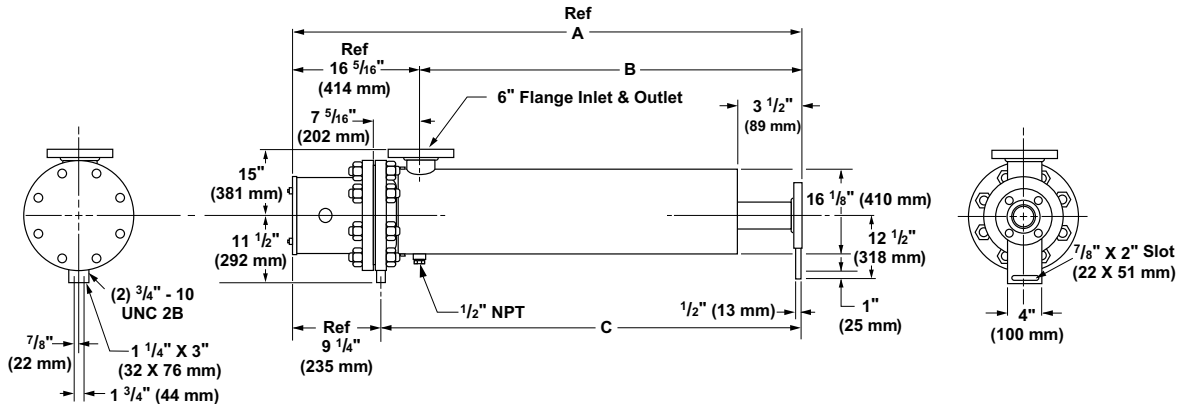
③ Must be operated 3-phase wye only.

Tubular and Process Assemblies

Circulation Heaters

14" Flange

Fig. No.	A Dimension in (mm)	B Dimension in (mm)	C Dimension in (mm)
10.1	75 3/4 (1924)	59 7/16 (1510)	66 1/2 (1689)
10.2	83 1/4 (2115)	66 15/16 (1700)	74 (1880)
10.3	90 3/4 (2305)	74 7/16 (1891)	81 1/2 (2070)
10.4	98 1/4 (2496)	81 15/16 (2081)	89 (2261)
10.5	105 3/4 (2686)	89 7/16 (2272)	96 1/2 (2451)



14" 150 lb ANSI Flange—WATROD Element

WATROD Description	kW	Fig. No.	Code No.				Est. Ship.	
			240V~(ac) 3-Phase	No. of Circuits	480V~(ac) 3-Phase	No. of Circuits	Weight lbs	(kg)

Application: Process Water

48 W/in ²	315	10.2			CFWN754J5②	15	600 (273)
Steel Tank	375	10.3			CFWN763J5②	15	650 (295)
45-Incoloy® (7.5 W/cm ²)							

Applications: Forced Air and Gases, Caustic Solutions, Degreasing Solutions

23 W/in ²	100	10.1			CFWNA43J5②	3	570 (259)
Steel Tank	125	10.2			CFWNA51J5	5	590 (268)
45-Incoloy® (3.6 W/cm ²)							

Applications: Lightweight Oils, Degreasing Solutions, Heat Transfer Oils

23 W/in ²	150	10.3			CFWS762A5②	5	650 (295)
Steel Tank	175	10.4			CFWS770J5	5	700 (318)
45-Steel (3.6 W/cm ²)	200	10.5			CFWS778J5②	5	780 (354)

Applications: Medium Weight Oils, Heat Transfer Oils, Liquid Paraffin

16 W/in ² ③	105	10.2			CFWN754J13②	3	600 (273)
Steel Tank	125	10.3			CFWN763J13②	5	650 (295)
45-Incoloy® (2.6 W/cm ²)							

Applications: Bunker C and #6 Fuel Oils

8 W/in ² ③	60	10.4	CFWS770J12②	3	CFWS770J13	3	700 (318)
Steel Tank	67	10.5	CFWS778J12②	5	CFWS778J13②	3	780 (354)
45-Steel (1.3 W/cm ²)							

All circulation heaters are Assembly Stock unless otherwise noted.

Availability

Assembly Stock: Five to seven working days

Standard: 10 working days

■ Truck Shipment only

② Standard

③ Must be operated 3-phase wye only.

Tubular and Process Assemblies

F.O.B.: Hannibal, Missouri

Circulation Heaters

Build-a-Code

Circulation Heater Base Code Number _____

General purpose (NEMA 1) terminal enclosure standard

Optional Terminal Enclosure Type _____

- S** = General purpose with thermostat (NEMA 1)
- W** = Moisture resistant (NEMA 4)
- E** = Explosion resistant (NEMA 7)
- E/W** = Explosion/moisture resistant (NEMA 7/4)

Optional Thermostat^① or Thermocouple^② _____

① Thermostat code numbers shown on [page 425](#). Check sensing bulb O.D. against thermowell I.D. to assure proper fit. For side-mount thermostats, also assure adequate capillary tube length.

② Specify Type J or K thermocouple. If overtemp thermocouple specify orientation horizontal, vertical up or vertical down.

Circulation Heaters

How to Order

To order a stock circulation heater, please specify:

- Watlow code number
- Volts/watts
- Phase
- Flange or screw plug size
- Tank material
- Options
- Quantity

If the circulation heater is to be configured with options, add the suffix letter(s) to the circulation heater base code number, as indicated on the Build-a-Code chart.

If stock units do not meet your application needs, Watlow can provide **made-to-order** heaters. Please provide:

- Application (including vessel orientation)
- Volts/watts
- Phase
- Number of circuits
- Watt density
- Sheath material and number of heating elements
- Flange or screw plug size
- Tank material
- Inlet and outlet mating type and size
- Centerline of inlet and outlet
- Terminal enclosure type
- Options
- Quantity

Availability

Assembly Stock: Five to seven working days

Modified Stock[Ⓢ]: Five-10 working days

Standard: 10 working days

Made-to-Order: Six to eight weeks

Options, complexity and quantity may affect availability and lead times. Consult factory.

Replacement Heater Assemblies Only

Replacement heater assemblies available by ordering circulation heater code number and specifying "replacement heater only."

Ⓢ Assembly Stock units with catalog options.