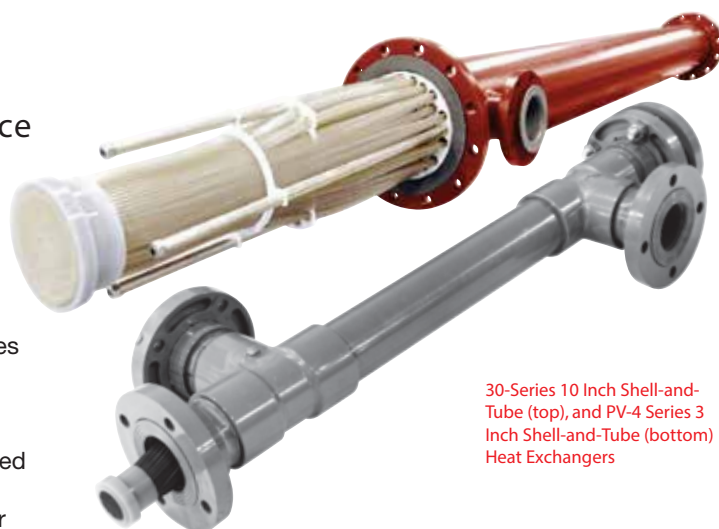


SHELL AND TUBE HEAT EXCHANGERS

- High Thermal Efficiency
- Unmatched Corrosion Resistance
- Unique Seal System
- FEP, PFA or Q Series Tubing

Niche Shell and Tube Heat Exchangers are available in a wide variety of capacities and sizes to meet virtually any type of process heating or cooling requirement. Niche Fluoropolymer Heat Exchangers are single pass, typically counter current flow designs incorporating the unmatched corrosion resistant qualities of fluoropolymer resins. Units are available with FEP, PFA and our proprietary highly conductive Q-series tubing. Most units can be supplied with shells made of Carbon Steel, Stainless Steel, PTFE lined, CPVC or a variety of materials to meet specific application requirements. Metal heat exchanger shells are ASME coded and equipped with TEMA/ANSI end nozzle connections.



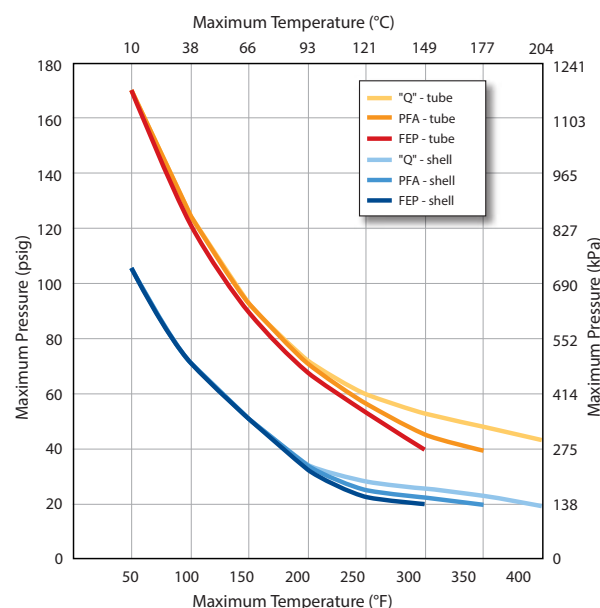
30-Series 10 Inch Shell-and-Tube (top), and PV-4 Series 3 Inch Shell-and-Tube (bottom) Heat Exchangers

Ordering Information

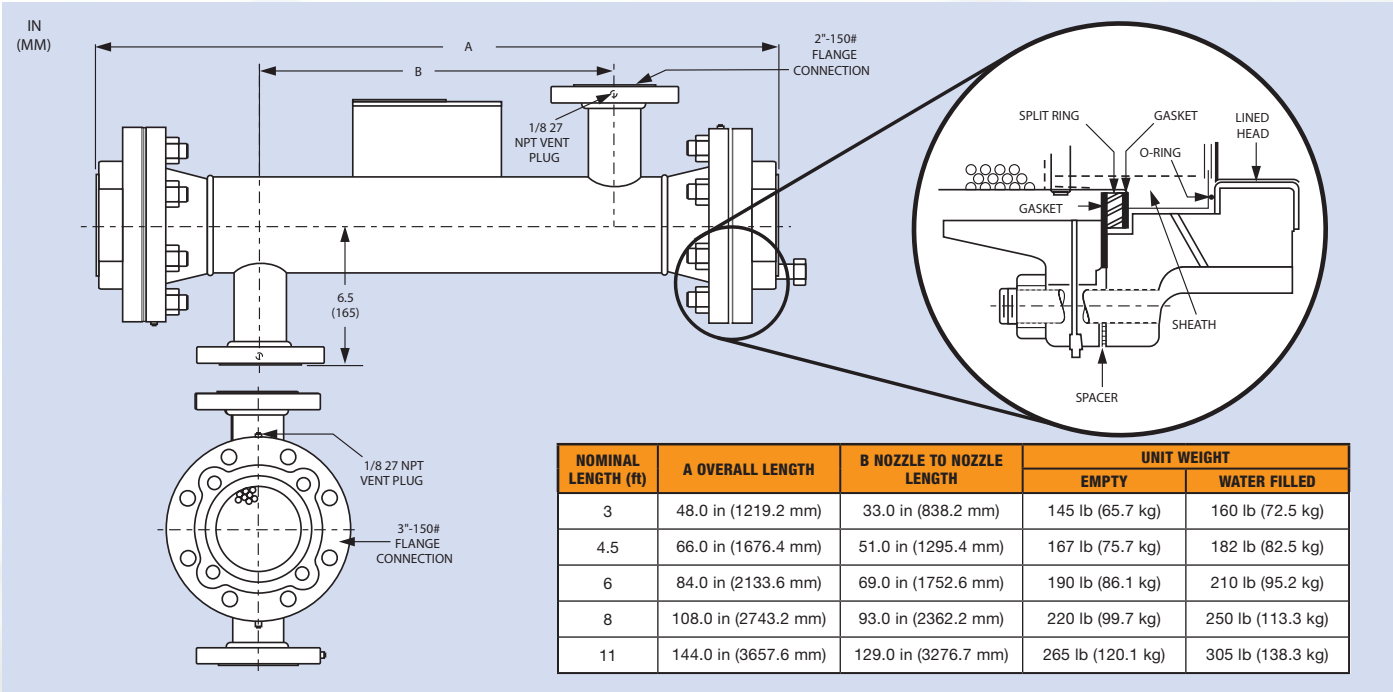
EXAMPLE: Q 105 CT M 30-8-VE			
Q	TUBING	P	= PFA
		Q	= PFA/Graphite
		(blank)	= FEP
105	MODEL NUMBER		
CT	SHELL	CT	= Carbon steel shell
M	END CONNECTIONS	M	= Metric
		(blank)	= ANSI
30	GENERATION		
8	NOMINAL LENGTH (ft.)		
V	O-RING SEAL MATERIAL	V	= VITON®
		E	= Ethylene propylene
		T	= Fluoropolymer encapsulated VITON®
		K	= KALREZ®
E	ENVELOPE GASKET MATERIAL	V	= VITON®
		E	= Ethylene propylene

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Tube Side and Shell Side Pressure Limitations



Dimensions - 30 Series - 4" Shell



Heat Transfer Area - 30 Series - 4" Shell

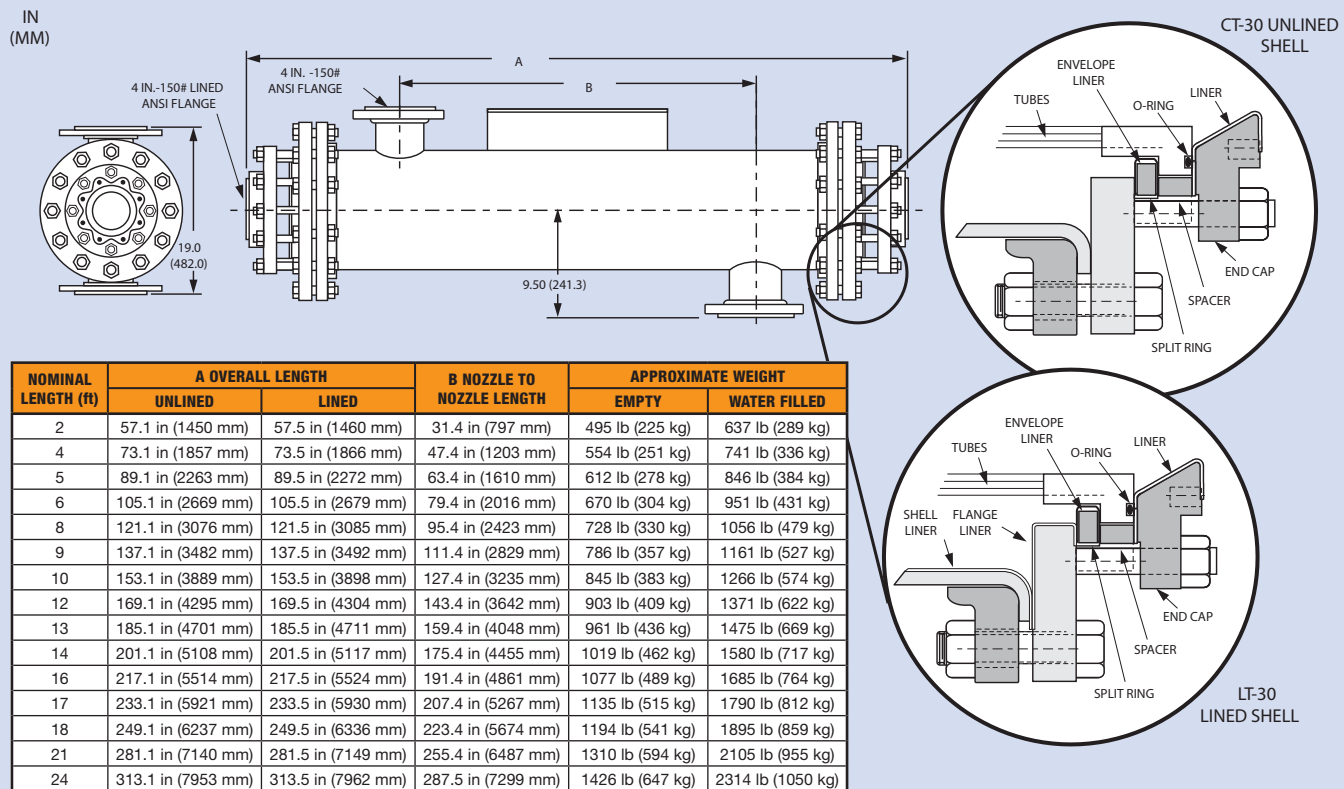
NOMINAL LENGTH (ft.)	MODEL 105	MODEL 220	MODEL 440
3	19.4 ft² (1.8 m²)	30.2 ft² (2.8 m²)	43.0 ft² (4.0 m²)
4.5	29.0 ft² (2.7 m²)	45.3 ft² (4.2 m²)	64.8 ft² (6.0 m²)
6	38.7 ft² (3.6 m²)	60.5 ft² (5.6 m²)	86.4 ft² (8.0 m²)
8	51.6 ft² (4.8 m²)	80.6 ft² (7.5 m²)	115.2 ft² (10.7 m²)
11	71.0 ft² (6.6 m²)	110.8 ft² (10.3 m²)	158.3 ft² (14.7 m²)

Heat Transfer Area - 30 Series - 10" and 14' Shell

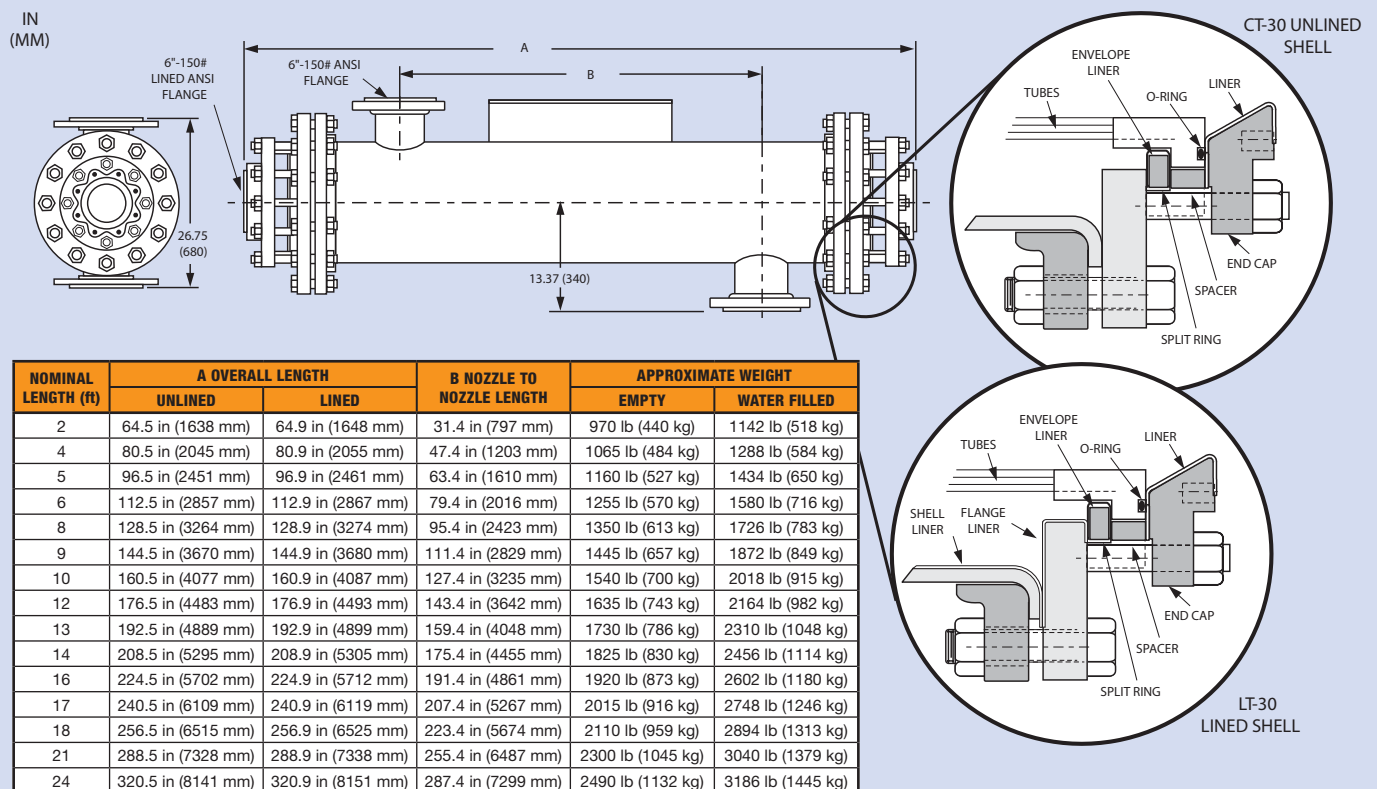
NOMINAL LENGTH (ft.)	10" SHELL			14" SHELL
	MODEL 218	MODEL 525	MODEL 1000	MODEL 950
2	36 ft² (3.3 m²)	57 ft² (5.2 m²)	80 ft² (7.4 m²)	102 ft² (9.5 m²)
4	64 ft² (5.9 m²)	102 ft² (9.4 m²)	144 ft² (13.4 m²)	183 ft² (17.0 m²)
5	93 ft² (8.6 m²)	147 ft² (13.6 m²)	208 ft² (19.3 m²)	264 ft² (24.5 m²)
6	121 ft² (11.2 m²)	192 ft² (17.8 m²)	272 ft² (25.3 m²)	345 ft² (32.0 m²)
8	150 ft² (13.9 m²)	237 ft² (22.0 m²)	336 ft² (31.2 m²)	425 ft² (39.5 m²)
9	178 ft² (16.5 m²)	283 ft² (26.2 m²)	400 ft² (37.2 m²)	508 ft² (47.2 m²)
10	207 ft² (19.2 m²)	328 ft² (30.4 m²)	464 ft² (43.1 m²)	589 ft² (54.7 m²)
12	235 ft² (21.8 m²)	373 ft² (34.6 m²)	528 ft² (49.1 m²)	670 ft² (62.2 m²)
13	264 ft² (24.5 m²)	418 ft² (38.8 m²)	592 ft² (55.0 m²)	750 ft² (69.7 m²)
14	293 ft² (27.1 m²)	463 ft² (43.0 m²)	656 ft² (61.2 m²)	831 ft² (77.2 m²)
16	321 ft² (29.8 m²)	509 ft² (47.2 m²)	720 ft² (66.9 m²)	914 ft² (84.9 m²)
17	350 ft² (32.4 m²)	554 ft² (51.4 m²)	784 ft² (72.9 m²)	995 ft² (92.4 m²)
18	378 ft² (35.1 m²)	599 ft² (55.6 m²)	848 ft² (78.8 m²)	1075 ft² (99.9 m²)
21	435 ft² (40.4 m²)	689 ft² (64.0 m²)	976 ft² (90.7 m²)	1237 ft² (114.9 m²)
24	492 ft² (45.7 m²)	780 ft² (72.4 m²)	1104 ft² (102.6 m²)	1400 ft² (130.1 m²)

Dimensions - 30 Series - 4" Shell

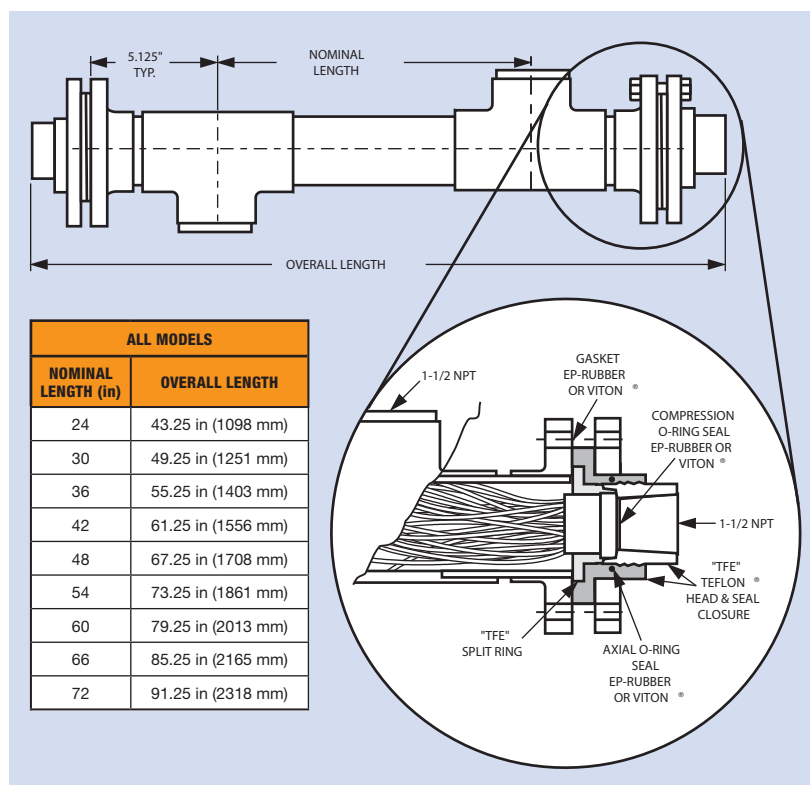
Dimensions - 30 Series - 10" Shell



Dimensions - 30 Series - 14" Shell



Dimensions - PV-4 Series



Heat Transfer Area - PV-4 Series

NOMINAL LENGTH (ft.)	MODEL 40	MODEL 80	MODEL 180
2.0	5 ft ² (0.47 m ²)	7 ft ² (0.65 m ²)	12 ft ² (1.09 m ²)
2.5	6 ft ² (0.56 m ²)	9 ft ² (0.81 m ²)	15 ft ² (1.37 m ²)
3.0	8 ft ² (0.72 m ²)	10 ft ² (0.97 m ²)	18 ft ² (1.64 m ²)
3.5	9 ft ² (0.83 m ²)	12 ft ² (1.13 m ²)	21 ft ² (1.91 m ²)
4.0	10 ft ² (0.95 m ²)	14 ft ² (1.29 m ²)	24 ft ² (2.19 m ²)
4.5	12 ft ² (1.07 m ²)	16 ft ² (1.46 m ²)	27 ft ² (2.46 m ²)
5.0	13 ft ² (1.19 m ²)	17 ft ² (1.62 m ²)	29 ft ² (2.73 m ²)
5.5	14 ft ² (1.30 m ²)	19 ft ² (1.78 m ²)	32 ft ² (3.00 m ²)
6.0	15 ft ² (1.42 m ²)	21 ft ² (1.94 m ²)	35 ft ² (3.28 m ²)

Specifications

	PV-4 SERIES 3" SHELL			30 SERIES 4" SHELL			30 SERIES 10" SHELL			30 SERIES 14" SHELL
Model Number	40	80	180	105	220	440	218	525	1000	900
Tube Outside Diameter	.250" (6.35mm)	.175" (4.45mm)	.125" (3.18mm)	.250" (6.35mm)	.175" (4.45mm)	.125" (3.18mm)	.375" (9.52mm)	.250" (6.35mm)	.175" (4.45mm)	.250" (6.35mm)
Tube Wall Thickness	.025" (.635mm)	.017" (.44mm)	.012" (.318mm)	.025" (.635mm)	.017" (.44mm)	.012" (.318mm)	.037" (.953mm)	.025" (.635mm)	.0175" (.445mm)	.025" (.635mm)
Typical Heat Transfer Coefficient (U) FEP & PFA	25-60 BTU/Hr.-ft. ² -°F (141-341 watts/m ² -°K)			25-60 BTU/Hr.-ft. ² -°F (141-341 watts/m ² -°K)			30-60 BTU/Hr.-ft. ² -°F (171-341 watts/m ² -°K)			30-60 BTU/Hr.-ft. ² -°F (171-341 watts/m ² -°K)
Typical Heat Transfer Coefficient (U) Q	35-100 BTU/Hr.-ft. ² -°F (199-567 watts/m ² -°K)			35-100 BTU/Hr.-ft. ² -°F (199-567 watts/m ² -°K)			42-90 BTU/Hr.-ft. ² -°F (238-511 watts/m ² -°K)			—
Shell Diameter	3" (76.2 mm)			4" (101.6 mm)			10" (254 mm)			14" (355.6 mm)
Shell Construction †	CPVC			Carbon Steel, unlined or lined with TEFLON®			Carbon Steel, unlined or lined with TEFLON®			Carbon Steel, unlined or lined with TEFLON®
Nominal Lengths	2-6 ft. (.6-1.8 m)			3-11 ft. (.9-3.35 m)			2-24 ft. (.6-7.31 m)			2-24 ft. (.6-7.31 m)
Area for Heat Transfer	5.1-35.5 ft. ² (.5-3.2 m ²)			19.4-158 ft. ² (1.8-14.7 m ²)			43-1100 ft. ² (4.0-108 m ²)			102-1400 ft. ²
Bundle Configuration	Braided or Cross Flow Baffle*			SS Basket or Cross Flow Baffle*			Cross Flow Baffle			Cross Flow Baffle

* Special order bundle configuration.

† Typical shell construction. Special material such as PP, CPVC, stainless steel or other metal alloys, and fiberglass available by special order. Custom configurations also available.

Niche
FLUOROPOLYMER PRODUCTS

42 MOUNTAIN AVENUE
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1M617P (040072)

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Adequate ventilation should be used where fluoropolymers are heated during tube repairs. Flu-like symptoms occur from exposure to vapors evolved from fluoropolymers at very high temperatures, up to 800F or from smoking materials that contain particles of fluoropolymers. Symptoms pass within 48 hours and are only adverse effects observed in humans to date. Unheated fluoropolymers are essentially inert and are irritating to the skin.

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