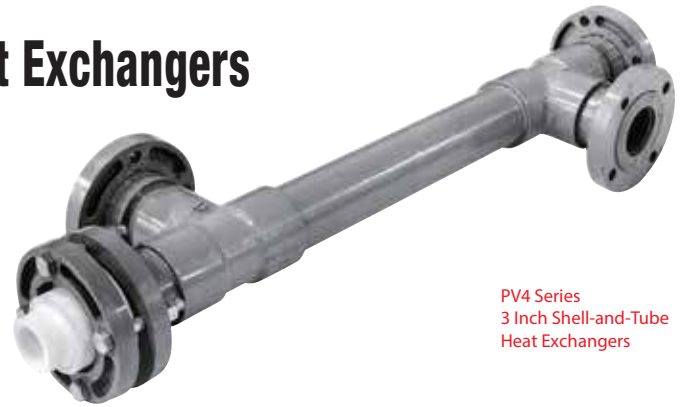


## SHELL AND TUBE HEAT EXCHANGERS

### PV4 Series Shell & Tube Heat Exchangers (3 inch shell)

- High thermal efficiency
- Unmatched corrosion resistance
- Unique seal system
- FEP, PFA or Q series tubing



PV4 Series  
3 Inch Shell-and-Tube  
Heat Exchangers

Niche Model PV4 Series Shell and Tube Heat Exchangers are small, inexpensive units ideal for low flow processes. Their design maximizes the heat transfer performance of FEP or PFA, as well as "Q" Series fluoropolymer tubing.

Niche PV4 Heat Exchangers come in standard designs shown in this bulletin and can be custom designed to meet customers' special process needs. Contact Niche or your local agent for additional information.

#### Specifications

Model Number	40	80	180
Tube Outside Diameter	.250" (6.35mm)	.175" (4.45mm)	.125" (3.18mm)
Tube Wall Thickness	.025" (.635mm)	.017" (.44mm)	.012" (.318mm)
Typical Heat Transfer Coefficient (U) FEP & PFA	25-60 BTU/Hr.-ft. <sup>2</sup> -°F (141-341 watts/m <sup>2</sup> -°K)		
Typical Heat Transfer Coefficient (U) Q	35-100 BTU/Hr.-ft. <sup>2</sup> -°F (199-567 watts/m <sup>2</sup> -°K)		
Shell Diameter	3" (76.2 mm)		
Shell Construction†	CPVC		
Nominal Lengths	2-6 ft. (.6-1.8 m)		
Area for Heat Transfer	4.4-33.4 ft. <sup>2</sup> (.4-3.1 m <sup>2</sup> )		
Bundle Configuration	Braided or Cross Flow Baffle*		

#### Model Number

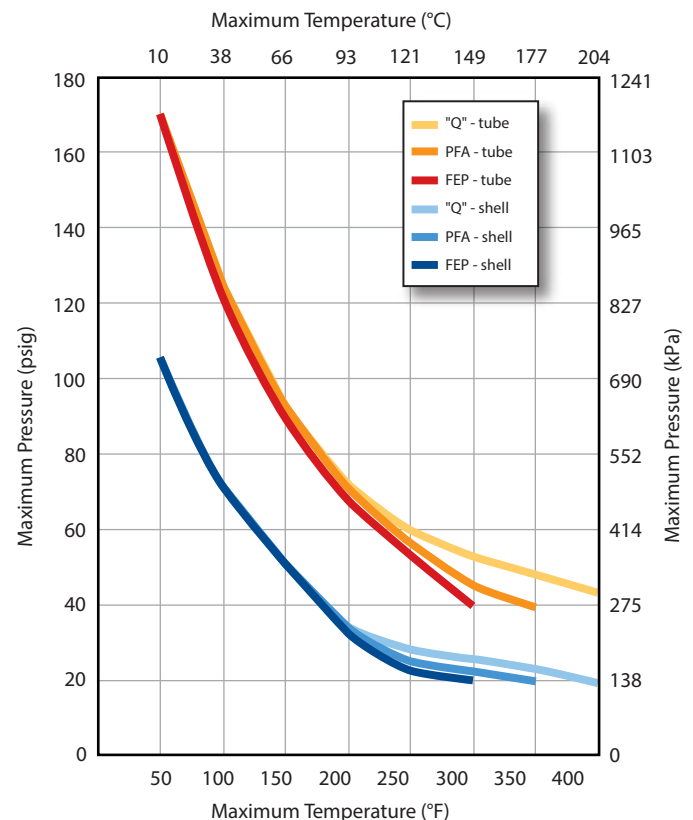
EXAMPLE: Q 80 PV 4 4 V E		
Q	TUBING	P = PFA
		Q = PFA/Graphite
		(blank) = FEP
80	MODEL NUMBER	
PV	SHELL †	PV = CPVC shell
4	GENERATION	
4	NOMINAL LENGTH (ft.)	
V	O-RING SEAL MATERIAL	V = VITON®
		E = Ethylene propylene
		T = Fluoropolymer encapsulated VITON®
		K = KALREZ®
E	ENVELOPE GASKET MATERIAL	V = VITON®
		E = Ethylene propylene

VITON® and KALREZ® are registered trademarks of the DuPont Company

\* Special order bundle configuration.

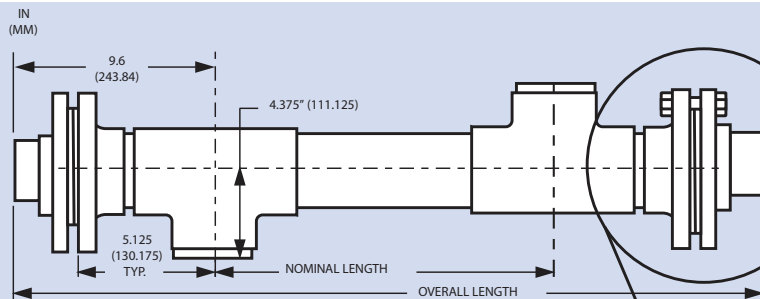
† Typical shell construction. Special material such as PP, CPVC, stainless steel or other metal alloys, are available by special order. Custom configurations also available.

#### Operation Limits

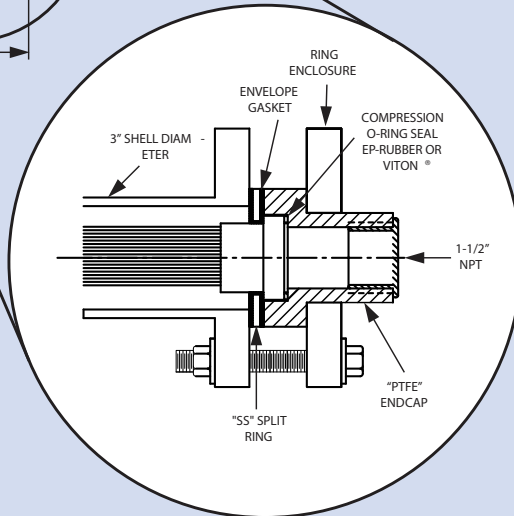


NOTE: The curves on the chart are for the fluoropolymer bundles only. The CPVC shell has an operating limit of 200 °F (93 °C)

## Dimensions - PV4 Series



ALL MODELS	
NOMINAL LENGTH (in)	OVERALL LENGTH
24	43.25 in (1098 mm)
30	49.25 in (1251 mm)
36	55.25 in (1403 mm)
42	61.25 in (1556 mm)
48	67.25 in (1708 mm)
54	73.25 in (1861 mm)
60	79.25 in (2013 mm)
66	85.25 in (2165 mm)
72	91.25 in (2318 mm)



NOTE: All outlets are 1-1/2" NPT. For alternatives contact your Niche Representative

## Heat Transfer Area

NOMINAL LENGTH (t)	MODEL 40		MODEL 80		MODEL 180	
	FT <sup>2</sup>	M <sup>2</sup>	FT <sup>2</sup>	M <sup>2</sup>	FT <sup>2</sup>	M <sup>2</sup>
2.0	4.4	0.4	6.2	0.6	9.8	0.9
2.5	5.7	0.5	8	0.7	12.8	1.2
3.0	7	0.6	9.9	0.9	15.7	1.5
3.5	8.3	0.8	11.7	1	18.7	1.7
4.0	9.6	0.9	13.5	1.2	21.6	2
4.5	10.9	1	15.4	1.4	24.6	2.3
5.0	12.2	1.1	17.2	1.6	27.5	2.6
5.5	13.5	1.3	19	1.8	30.5	2.8
6.0	14.9	1.4	20.8	1.9	33.4	3.1

FEP and PFA Series coils are considered inert to corrosive chemicals. Contact an Niche representative for chemical resistance data on your specific application. Q-Series heat exchangers are inert to most corrosive chemicals except for certain concentrated hot, oxidizing acids.

## Niche FLUOROPOLYMER PRODUCTS

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1M617P (040013)

Fluoropolymer resins are generally considered inert to most chemicals. Under certain conditions of pressure and temperature, or combinations of chemicals, fluoropolymer tubing should not be used. Please contact Niche for discussion of your specific process to be certain that our products are appropriate for your intended use.

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 nonirritating to the skin.

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