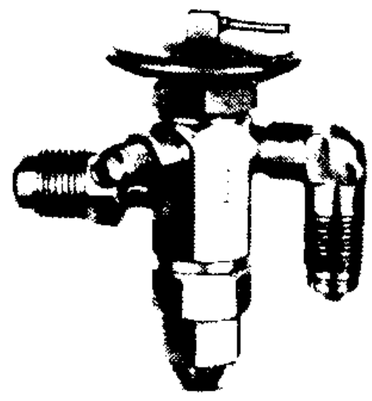
TYPE F

NEW . . .
WITH REPLACEABLE ELEMENTS
for Refrigerants 12-22-502

SAE Flare / ③ ODF Solder Connections



The Type-F thermostatic expansion valve is a small, externally adjustable valve with a replaceable element for use on air conditioning systems, heat pumps, and refrigerated fixtures where limited space is a design consideration.

The use of Sporlan Selective Charges, C, Z, and ZP make the Type-F valve ideal for application to refrigerated display cases, walk-in coolers, reach-in coolers, and all other small refrigeration systems both high and low temperature.

For air conditioning systems and heat pumps, the **externally equalized model** can be used with types P or VGA Flow-Master thermostatic charges. On multi-circuit evaporators, uniform refrigerant distribution is insured with the use of Sporlan Distributors. Refer to Bulletin 20-10 for details. **When ordering, specify** the externally equalized model valve.

SPECIFICATIONS
ELEMENT SIZE NO. 43, KNIFE EDGE JOINT

REFRIGERANT	TYPE: Internal Equalizer	TYPE: External Equalizer	NOMINAL CAPACITY Tons of Refrigeration	Thermostatic Charges Available	Standard Tubing Length - Inches	CONNECTIONS — Inches SAE Flare/③ ODF Solder. Bold Figures are standard and will be furnished unless otherwise specified. ② INLET	CONNECTIONS — OUTLET	Net Weight—lbs.	Shipping Wt.—lbs.
12	FF-1/4	FFE-1/4	1/4	C	30	1/4 or ① 3/8	3/8 or 1/2	1	1 1/2
	FF-1/2	FFE-1/2	1/2						
	FF-1	FFE-1	1			1/4 or ① 3/8			
	—	FFE-1 1/2	1 1/2			3/8 only	1/2 only		
	—	FFE-2	2						
	—	FFE-3	3	Z					
22	FV-1/2	FVE-1/2	1/2			1/4 or ① 3/8	3/8 or 1/2		
	FV-1	FVE-1	1						
	FV-1 1/2	FVE-1 1/2	1 1/2	ZP		3/8 only	1/2 only		
	—	FVE-2	2						
	—	FVE-3	3						
	—	FVE-5	5	P					
502	FR-1/4	FRE-1/4	1/4	Air Cond.		1/4 or ① 3/8	3/8 or 1/2		
	FR-1/2	FRE-1/2	1/2						
	FR-1	FRE-1	1			1/4 or ① 3/8			
	—	FRE-1 1/2	1 1/2						
	—	FRE-2	2	VGA		3/8 only	1/2 only		
	—	FRE-3	3						

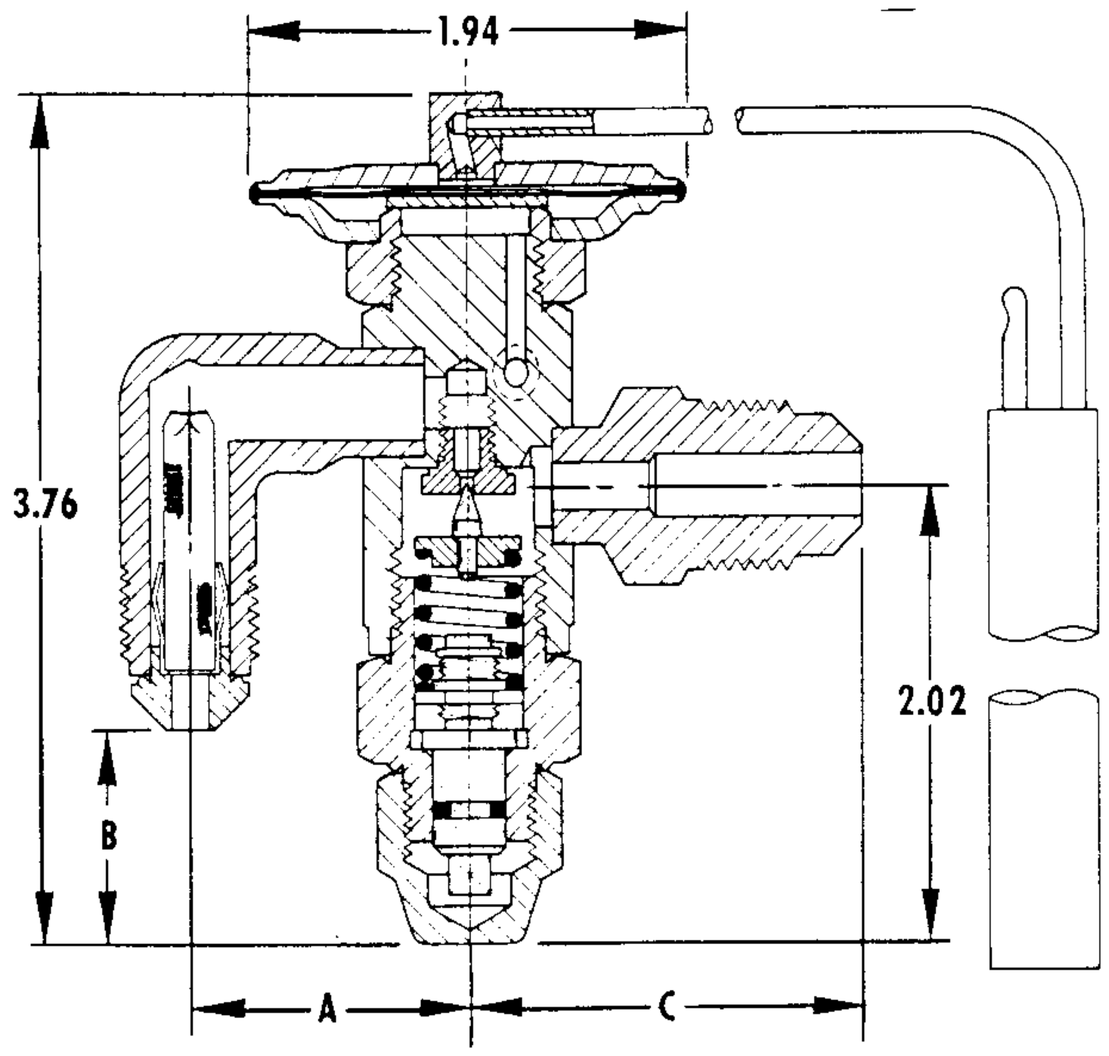
① Has long taper. 1/4" OD tubing can be connected by using 3/8" × 1/4" reducing flare nut.
② Removable strainer provided with both 1/4" and 3/8" inlet.
③ ODF Solder connections are available for special order with minimum order of 50 pieces of one specification.

BULB SIZES — Inches

STANDARD CHARGES	REFRIGERANT 12	22	502	500
C	0.50 OD x 3.00			
Z & ZP-Series	0.50 OD x 3.00			—
CP-Series	0.50 OD x 3.00			
VGA	—	0.75 OD x 2.00	—	—

DIMENSIONS — Inches
Connections - SAE Flare

Inlet	A	B	C
1/4 Elbow	1.06	1.35	—
3/8 Elbow	1.27	.98	—
Outlet			
3/8	—	—	1.61
1/2	—	—	1.80



REFRIGERANT	NOMINAL CAPACITY	EVAPORATOR TEMPERATURE DEGREES F.																	
		40°						20°						0°					
		PRESSURE DROP ACROSS VALVE (Pounds Per Square Inch)																	
		40	60	80	100	120	140	60	80	100	120	140	160	60	80	100	120	140	160
12	¼	0.20	**0.25**	0.29	0.32	0.35	0.38	0.25	**0.29**	0.32	0.35	0.38	0.41	0.25	0.29	0.32	0.35	0.38	0.41
	½	0.41	**0.50**	0.58	0.64	0.71	0.76	0.50	**0.58**	0.64	0.71	0.76	0.82	0.42	0.48	0.54	0.59	0.64	0.68
	1	0.82	**1.00**	1.15	1.29	1.41	1.53	1.00	**1.15**	1.29	1.41	1.53	1.63	0.80	0.92	1.03	1.13	1.22	1.31
	1½	1.31	**1.60**	1.85	2.06	2.26	2.44	1.20	**1.38**	1.55	1.70	1.83	1.96	1.15	1.33	1.48	1.63	1.76	1.88
	2	1.63	**2.00**	2.31	2.58	2.83	3.06	1.65	**1.91**	2.13	2.33	2.52	2.69	1.55	1.79	2.00	2.19	2.37	2.53
	3	2.45	**3.00**	3.46	3.87	4.24	4.58	2.60	**3.00**	3.36	3.68	3.97	4.24	2.30	2.66	2.97	3.25	3.51	3.76
	NOMINAL CAPACITY	EVAPORATOR TEMPERATURE DEGREES F.																	
		−10°						−20°						−40°					
		PRESSURE DROP ACROSS VALVE (Pounds Per Square Inch)																	
		80	100	120	140	160	180	80	100	120	140	160	180	80	100	120	140	160	180
	¼	0.26	**0.30**	0.32	0.35	0.38	0.40	0.23	0.26	0.28	0.31	0.33	0.35	0.15	0.17	**0.18**	0.20	0.21	0.22
	½	0.42	**0.46**	0.50	0.55	0.59	0.62	0.35	0.39	0.42	0.46	0.49	0.52	0.23	0.26	**0.28**	0.31	0.33	0.35
	1	0.81	**0.90**	0.99	1.07	1.14	1.21	0.69	0.77	0.85	0.92	0.98	1.04	0.48	0.54	**0.59**	0.64	0.68	0.73
	1½	1.00	**1.12**	1.23	1.33	1.42	1.51	0.89	0.99	1.09	1.18	1.26	1.33	0.58	0.64	**0.71**	0.76	0.82	0.87
	2	1.30	**1.46**	1.60	1.73	1.84	1.96	1.15	1.29	1.41	1.53	1.63	1.73	0.77	0.86	**0.95**	1.02	1.09	1.16
	3	2.08	**2.32**	2.54	2.75	2.94	3.12	1.85	2.06	2.26	2.44	2.61	2.77	1.15	1.29	**1.41**	1.53	1.63	1.73

REFRIGERANT	NOMINAL CAPACITY	EVAPORATOR TEMPERATURE DEGREES F.																	
		40°						20°						0°					
		PRESSURE DROP ACROSS VALVE (Pounds Per Square Inch)																	
		75	100	125	150	175	200	75	100	125	150	175	200	75	100	125	150	175	200
22	½	0.43	**0.50**	0.56	0.61	0.66	0.71	0.43	0.50	**0.56**	0.61	0.66	0.71	0.43	0.50	0.56	0.61	0.66	0.71
	1	0.87	**1.00**	1.12	1.23	1.32	1.41	0.87	1.00	**1.12**	1.23	1.32	1.41	0.69	0.80	0.89	0.98	1.06	1.13
	1½	1.38	**1.60**	1.79	1.96	2.12	2.26	1.38	1.60	**1.79**	1.96	2.12	2.26	1.13	1.30	1.45	1.59	1.72	1.84
	2	1.73	**2.00**	2.24	2.45	2.64	2.83	1.73	2.00	**2.24**	2.45	2.64	2.83	1.56	1.80	2.01	2.20	2.38	2.54
	3	2.77	**3.20**	3.58	3.92	4.23	4.52	2.77	3.20	**3.58**	3.92	4.23	4.52	2.42	2.80	3.13	3.43	3.70	3.96
	5	4.50	**5.20**	5.81	6.37	6.88	7.36	4.50	5.20	**5.81**	6.37	6.88	7.36	3.90	4.50	5.03	5.51	5.95	6.36
	NOMINAL CAPACITY	EVAPORATOR TEMPERATURE DEGREES F.																	
		−10°						−20°						−40°					
		PRESSURE DROP ACROSS VALVE (Pounds Per Square Inch)																	
		100	125	150	175	200	225	125	150	175	200	225	250	125	150	175	200	225	250
	½	0.45	0.50	**0.55**	0.60	0.64	0.68	0.45	0.49	0.53	0.56	0.60	0.63	0.30	0.33	**0.36**	0.38	0.40	0.43
	1	0.70	0.78	**0.86**	0.92	0.99	1.05	0.73	0.80	0.86	0.92	0.98	1.03	0.47	0.51	**0.56**	0.59	0.63	0.66
	1½	1.00	1.12	**1.22**	1.32	1.41	1.50	1.01	1.10	1.19	1.27	1.35	1.42	0.73	0.80	**0.86**	0.92	0.98	1.03
	2	1.60	1.79	**1.96**	2.12	2.26	2.40	1.56	1.71	1.85	1.98	2.10	2.21	1.12	1.22	**1.32**	1.41	1.50	1.58
	3	1.90	2.12	**2.33**	2.51	2.69	2.85	1.90	2.08	2.25	2.40	2.55	2.69	1.34	1.47	**1.59**	1.70	1.80	1.90
	5	3.30	3.69	**4.04**	4.36	4.67	4.95	3.24	3.55	3.84	4.10	4.35	4.58	2.24	2.45	**2.64**	2.83	3.00	3.16

REFRIGERANT	NOMINAL CAPACITY	EVAPORATOR TEMPERATURE DEGREES F.																	
		40°						20°						0°					
		PRESSURE DROP ACROSS VALVE (Pounds Per Square Inch)																	
		75	100	125	150	175	200	75	100	125	150	175	200	75	100	125	150	175	200
502	¼	0.22	**0.25**	0.28	0.31	0.33	0.35	0.22	0.25	**0.28**	0.31	0.33	0.35	0.22	0.25	0.28	0.31	0.33	0.35
	½	0.43	**0.50**	0.56	0.61	0.66	0.71	0.43	0.50	**0.56**	0.61	0.66	0.71	0.43	0.50	0.56	0.61	0.66	0.71
	1	0.87	**1.00**	1.12	1.23	1.32	1.41	0.87	1.00	**1.12**	1.22	1.32	1.41	0.87	1.00	1.12	1.22	1.32	1.41
	1½	1.30	**1.50**	1.68	1.84	1.98	2.12	1.21	1.40	**1.56**	1.71	1.85	1.98	1.04	1.20	1.34	1.47	1.59	1.70
	2	1.73	**2.00**	2.24	2.45	2.64	2.83	1.64	1.90	**2.12**	2.33	2.51	2.69	1.38	1.60	1.79	1.96	2.12	2.26
	3	2.42	**2.80**	3.13	3.43	3.70	3.96	2.29	2.65	**2.96**	3.24	3.50	3.75	1.73	2.00	2.24	2.45	2.64	2.83
	NOMINAL CAPACITY	EVAPORATOR TEMPERATURE DEGREES F.																	
		−10°						−20°						−40°					
		PRESSURE DROP ACROSS VALVE (Pounds Per Square Inch)																	
		100	125	150	175	200	225	125	150	175	200	225	250	125	150	175	200	225	250
	¼	0.25	0.28	**0.31**	0.33	0.35	0.38	0.28	0.31	0.33	0.35	0.38	0.40	0.22	0.24	**0.26**	0.28	0.30	0.32
	½	0.48	0.54	**0.59**	0.63	0.68	0.72	0.48	0.53	0.57	0.61	0.64	0.68	0.38	0.42	**0.45**	0.48	0.51	0.54
	1	0.90	1.01	**1.10**	1.19	1.27	1.35	0.89	0.98	1.06	1.13	1.20	1.26	0.67	0.73	**0.79**	0.85	0.90	0.95
	1½	1.20	1.34	**1.47**	1.59	1.70	1.80	1.12	1.22	1.32	1.41	1.50	1.58	0.84	0.92	**0.99**	1.06	1.12	1.18
	2	1.60	1.79	**1.96**	2.12	2.26	2.40	1.68	1.84	1.98	2.12	2.25	2.37	1.12	1.22	**1.32**	1.41	1.50	1.58
	3	2.00	2.24	**2.45**	2.64	2.83	3.00	1.90	2.08	2.25	2.40	2.55	2.69	1.45	1.59	**1.72**	1.84	1.95	2.06

REFRIGERANT LIQUID TEMPERATURE CORRECTION FACTORS

Refrigerant Liquid Temperature °F.		40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°
Correction Factor	R-12	1.36	1.30	1.24	1.18	1.12	1.06	1.00	0.94	0.88	0.82	0.75
	R-22	1.34	1.29	1.23	1.17	1.12	1.06	1.00	0.94	0.88	0.82	0.76
	R-502	1.52	1.44	1.35	1.26	1.18	1.09	1.00	0.91	0.82	0.73	0.64

These factors include corrections for liquid refrigerant density and net refrigerating effect and are based on an average evaporator temperature of 0°F. However they may be used for any evaporator temperature from −40°F. to 40°F. since the variation in the actual factors across this range insignificant.

EXAMPLE for REFRIGERANT 12: Actual capacity of nominal 3 ton valve at −20°F. evaporator, 140 psi. pressure drop and 60°F. liquid temperature = 2.44 tons × 1.24 = 3.03 tons.

SPORLAN VALVE COMPANY

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