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7V Series Solenoid Valves

Refrigeration

Catalog D-1d, January 2016



ENGINEERING YOUR SUCCESS.



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General Information

INTRODUCTION

7V Series is a new range of solenoid valves for the liquid line, suction line and hot gas service for refrigeration and AC applications.

We choose the best, innovative materials for our valves and we assure a perfect control of the manufacturing process with 100% testing in order to offer the best quality product for our customers.

7V Series are compatible with all CFC, HCFC and HFC refrigerants and blends and most refrigeration oils in the limit of MRP of 500 psi (35 bar).

COMPLIANCE TO REGULATIONS AND STANDARDS

7V Series solenoid valves are fully compliant to regulation including: European Directives 97/23/CE (PED), 2006/95/CE (Low Voltage), RoHS.

The declarations of conformity are available from your Parker distributor.

VALVE NOMENCLATURE AND IDENTIFICATION

The nomenclature of 7V Series solenoid valves has been created to allow an easy identification of any valves by the port size and fitting size and type.

All parts have to be ordered separately as they are delivered in individual boxes:

- Body (table page 4)
- Coil (table page 4)
- DIN connector and mounting brackets (table page 4)

The O-ring (4), the coil nut (1) and its O-ring (2) are delivered with the valve body. (see schematics on page 10)

Examples

Example 1

7V	23	S	M	22
7V Series	Port size in 1/32 of an inch	Solder ODF (F – Flare SAE)	Metric Connections	Connection size in mm

Example 2

7V	8	S	3
7V Series	Port size in 1/32 of an inch	F – Flare SAE (S – Solder ODF)	Connection size in 1/8 of an inch

Technical Information

SPECIFICATIONS – VALVES

7V Series solenoid valves are of normally closed construction. The Maximum Rated Pressure: 500 psi (35 bar)

Application temperature range for refrigerant: -40°F to 220°F (-40°C to +105°C) for ambient temperature of max 120°F (+50°C)

IMPORTANT: Note M.O.P.D. is different with AC voltage 50 Hertz and 60 Hertz.

DIRECT ACTING – INCHES

Valve Type	Connections SAE or ODF	Port Size	Flow Coefficient	Minimum Pressure Differential	Maximum Pressure Differential M.O.P.D.	
	Inches	Inches (mm)	Cv (Kv)	psi (bar)	AC 50 Hz psi (bar)	AC 60 Hz psi (bar)
7V3F2	1/4" SAE	0.098 (2.5)	0.22 (0.185)	0 (0)	435 (30)	350 (24)
7V4F2	1/4" SAE	0.118 (3.0)	0.31 (0.270)	0 (0)	435 (30)	350 (24)
7V4F3	3/8" SAE	0.118 (3.0)	0.31 (0.270)	0 (0)	435 (30)	350 (24)
7V3S2	1/4" ODF	0.098 (2.5)	0.22 (0.185)	0 (0)	435 (30)	350 (24)
7V4S2	1/4" ODF	0.118 (3.0)	0.31 (0.270)	0 (0)	435 (30)	350 (24)
7V4S3	3/8" ODF	0.118 (3.0)	0.31 (0.270)	0 (0)	435 (30)	350 (24)

DIRECT ACTING – MM

Valve Type	Connections SAE or ODF	Port Size	Flow Coefficient	Minimum Pressure Differential	Maximum Pressure Differential M.O.P.D.	
	mm	Inches (mm)	Cv (Kv)	psi (bar)	AC 50 Hz psi (bar)	AC 60 Hz psi (bar)
7V3SM6	6 ODF	0.098 (2.5)	0.22 (0.185)	0 (0)	435 (30)	350 (24)
7V4SM6	6 ODF	0.118 (3.0)	0.31 (0.270)	0 (0)	435 (30)	350 (24)

PILOT OPERATED - INCHES (MM)

Valve Type	Connections SAE or ODF	Port Size	Flow Coefficient	Minimum Pressure Differential	Maximum Pressure Differential M.O.P.D.	
	Inches	Inches (mm)	Cv (Kv)	psi (bar)	AC 50 Hz psi (bar)	AC 60 Hz psi (bar)
7V8F3	3/8" SAE	0.25 (6.5)	0.93 (0.80)	1 (0.1)	435 (30)	350 (24)
7V10F3	3/8" SAE	0.31 (8)	1.62 (1.40)	1 (0.1)	435 (30)	350 (24)
7V10F4	1/2" SAE	0.31 (8)	1.62 (1.40)	1 (0.1)	435 (30)	350 (24)
7V13F4	1/2" SAE	0.39 (10)	2.19 (1.88)	1 (0.1)	435 (30)	350 (24)
7V19F5	5/8" SAE	0.59 (15)	3.83 (3.30)	1 (0.1)	435 (30)	350 (24)
7V8S3	3/8" ODF	0.25 (6.5)	0.93 (0.80)	1 (0.1)	435 (30)	350 (24)
7V8S4	1/2" ODF	0.25 (6.5)	0.93 (0.80)	1 (0.1)	435 (30)	350 (24)
7V10S3	3/8" ODF	0.31 (8)	1.62 (1.40)	1 (0.1)	435 (30)	350 (24)
7V13S4	1/2" ODF	0.39 (10)	2.19 (1.88)	1 (0.1)	435 (30)	350 (24)
7V13S5	5/8" ODF	0.39 (10)	2.19 (1.88)	1 (0.1)	435 (30)	350 (24)
7V19S5	5/8" ODF	0.59 (15)	3.83 (3.30)	1 (0.1)	435 (30)	350 (24)
7V19S7	7/8" ODF	0.59 (15)	3.83 (3.30)	1 (0.1)	435 (30)	350 (24)
7V23S6	3/4" ODF	0.71 (18)	4.47 (3.85)	1 (0.1)	435 (30)	350 (24)
7V23S7	7/8" ODF	0.71 (18)	5.01 (4.32)	1 (0.1)	435 (30)	350 (24)
7V23S9	1-1/8" ODF	0.71 (18)	5.01 (4.32)	1 (0.1)	435 (30)	350 (24)

The MOPD values are given for AC 50Hz. They have to be reduced by 20% if 60Hz AC current is used.

SPECIFICATIONS – VALVES (cont.)

PILOT OPERATED - INCHES (MM)

Valve Type	Connections SAE or ODF	Port Size	Flow Coefficient	Minimum Pressure Differential	Maximum Pressure Differential M.O.P.D.	
	Inches	Inches (mm)	Cv (Kv)	psi (bar)	AC 50 Hz psi (bar)	AC 60 Hz psi (bar)
7V8SM10	10 ODF	0.25 (6.5)	0.93 (0.80)	1 (0.1)	435 (30)	350 (24)
7V8SM12	12 ODF	0.25 (6.5)	0.93 (0.80)	1 (0.1)	435 (30)	350 (24)
7V10SM10	10 ODF	0.31 (8)	1.62 (1.40)	1 (0.1)	435 (30)	350 (24)
7V13SM12	12 ODF	0.39 (10)	2.19 (1.88)	1 (0.1)	435 (30)	350 (24)
7V13SM16	16 ODF	0.39 (10)	2.19 (1.88)	1 (0.1)	435 (30)	350 (24)
7V19SM16	16 ODF	0.59 (15)	3.83 (3.30)	1 (0.1)	435 (30)	350 (24)
7V19SM22	22 ODF	0.59 (15)	3.83 (3.30)	1 (0.1)	435 (30)	350 (24)
7V23SM18	18 ODF	0.71 (18)	4.47 (3.85)	1 (0.1)	435 (30)	350 (24)
7V23SM22	22 ODF	0.71 (18)	5.01 (4.32)	1 (0.1)	435 (30)	350 (24)
7V23SM28	28 ODF	0.71 (18)	5.01 (4.32)	1 (0.1)	435 (30)	350 (24)

The MOPD values are given for AC 50Hz. They have to be reduced by 20% if 60Hz AC current is used.

SPECIFICATIONS – COILS

We offer two different types of coils for our valves. The preferred coil should be selected depending on the application and based on the required: current, voltage and IP rating. If the coil with specifications differ from those in the table is required, please contact your Parker distributor.

All the coils are manufactured with class H copper wire, molded in thermoplastic (polyester) with 30% glass fiber.

DIN Coil	Voltage Code	Lead Wire Length in (mm)	Power	Electrical connections	IP Rating
C300392	Q3 = 220V/50Hz 240V/60 Hz	N/A	11W	**DIN PG9 and PG11	IP 65
	U3 = 208-240V/60Hz	N/A	11W	**DIN PG9 and PG11	IP 65
	P3 = 110V/50Hz 120V/60 Hz	N/A	11W	**DIN PG9 and PG11	IP 65
	B2 = 24V/60 Hz	N/A	11W	**DIN PG9 and PG11	IP 65
Flying Leads Coil	Voltage Code	Lead Wire Length in (mm)	Power	Electrical connections	IP Rating
C300448	Q3 = 220V/50Hz 240V/60 Hz	F1 = 7.9 (200)	11W	N/A	IP 67
	U3 = 208-240V/60Hz	F2 = 11.8 (300)	11W	N/A	IP 67
	P3 = 110V/50Hz 120V/60 Hz	*F3 = 19.7 (500)	11W	N/A	IP 67
	B2 = 24V/60 Hz	F4 = 31.5 (800)	11W	N/A	IP 67

*Standard length for lead wire. For other lengths, contact Parker Sporlan for availability.

**Order DIN Connectors as separate item.

DIN Connectors		
C300456	PG9, PG11	DIN Connector for coil series C300392

SPECIFICATIONS – CONNECTORS

Connector DIN 43650	
Nominal Voltage	250-300V=
Max Switch Rating	16A
Contact Resistance	≤4 m Ohm
Contact Width (Max)	.002 in ² (1.5 mm ²)
Protection Class	IP65 - DIN 40050
Insulation Class	Group C - VDE 0110
Gasket Material	NBR -40°F + 195°F (-40°C + 90°C)
Cable Diameter	0.24"-0.31", 0.31"-0.41" (6-8, 8-10)
Gland Nut	PG 9 and PG 11

SPECIFICATIONS – CONSTRUCTION MATERIAL DETAILS

Valve Type	Type of Operation	Body	Seat Type	
			Main Port	Pilot Port
7V3, 7V4	Direct Acting	Forged Brass	Rulon on Stainless Steel	-
7V8, 7V10, 7V13, 7V19, 7V23	Pilot Operated	Forged Brass	Diaphragm PTFE on Brass	Rulon on Stainless Steel

Capacity Tables

7V SERIES – LIQUID CAPACITY IN IP UNITS

Type	Port Size Inches	Tons of Refrigeration																								
		22					134a					401A					402A					404A				
		Pressure Drop - psi																								
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
7V3	0.098	0.59	0.83	1.01	1.17	1.30	0.55	0.77	0.94	1.09	1.22	0.59	0.83	1.02	1.17	1.31	0.39	0.55	0.68	0.78	0.87	0.38	0.53	0.65	0.75	0.84
7V4	0.118	0.72	1.01	1.24	1.43	1.59	0.67	0.95	1.16	1.33	1.49	0.73	1.02	1.25	1.44	1.60	0.48	0.68	0.83	0.96	1.07	0.47	0.66	0.80	0.92	1.03
7V8	0.25	2.64	3.79	4.69	5.45	6.13	2.47	3.55	4.38	5.10	5.73	2.66	3.82	4.73	5.49	6.17	1.77	2.54	3.14	3.66	4.11	1.70	2.45	3.02	3.52	3.95
7V10	0.31	5.34	7.49	9.14	10.52	11.74	4.98	7.00	8.53	9.83	10.96	5.37	7.55	9.21	10.60	11.82	3.58	5.03	6.14	7.07	7.88	3.46	4.86	5.92	6.82	7.61
7V13	0.39	5.60	7.93	9.72	11.23	12.56	5.22	7.40	9.07	10.48	11.72	5.57	7.89	9.67	11.17	12.50	3.78	5.36	6.57	7.59	8.49	3.62	5.12	6.28	7.25	8.11
7V19	0.59	10.47	14.92	18.35	21.25	23.82	9.78	13.94	17.14	19.85	22.25	10.55	15.03	18.49	21.41	24.00	7.02	10.01	12.31	14.25	15.97	6.76	9.64	11.85	13.73	15.38
7V23S7	0.71	12.72	18.03	22.11	25.56	28.59	11.88	16.84	20.65	23.87	26.71	12.82	18.17	22.28	25.75	28.81	8.54	12.10	14.84	17.15	19.19	8.23	11.66	14.30	16.53	18.49

Type	Port Size Inches	Tons of Refrigeration																								
		407A					407C					407F					410A					507				
		Pressure Drop - psi																								
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
7V3	0.098	0.51	0.72	0.88	1.01	1.13	0.55	0.78	0.95	1.10	1.23	0.50	0.71	0.87	1.00	1.12	N/A					0.36	0.50	0.61	0.71	0.79
7V4	0.118	0.63	0.88	1.08	1.24	1.38	0.68	0.96	1.17	1.35	1.50	0.62	0.87	1.06	1.23	1.37						0.44	0.62	0.75	0.87	0.97
7V8	0.25	2.29	3.29	4.07	4.73	5.31	2.49	3.58	4.42	5.14	5.78	2.27	3.26	4.03	4.68	5.26						1.60	2.30	2.84	3.30	3.71
7V10	0.31	4.63	6.51	7.94	9.14	10.19	5.04	7.08	8.63	9.94	11.08	4.58	6.44	7.85	9.04	10.09						3.25	4.56	5.56	6.40	7.14
7V13	0.39	4.85	6.87	8.42	9.73	10.88	5.28	7.47	9.16	10.58	11.83	4.80	6.80	8.33	9.63	10.77						3.50	4.96	6.08	7.03	7.86
7V19	0.59	9.08	12.94	15.92	18.43	20.66	9.88	14.07	17.31	20.05	22.46	8.99	12.81	15.75	18.25	20.45						6.35	9.05	11.13	12.89	14.44
7V23S7	0.71	11.04	15.65	19.19	22.18	24.81	12.01	17.02	20.87	24.12	26.98	10.93	15.49	18.99	21.95	24.56						7.73	10.95	13.43	15.52	17.36

Minimum operating capacity is at one psi pressure drop for pilot operated valves.

REFRIGERANT LIQUID TEMPERATURE CORRECTION FACTORS

Refrigerants	Temperature °F										
	40	50	60	70	80	90	100	110	120	130	140
R-22	1.33	1.27	1.22	1.17	1.11	1.06	1.00	0.94	0.89	0.83	0.77
R-134a	1.39	1.33	1.26	1.20	1.13	1.07	1.00	0.93	0.87	0.80	0.73
R-401A	1.34	1.29	1.23	1.17	1.12	1.06	1.00	0.94	0.88	0.82	0.75
R-402A	1.57	1.48	1.39	1.29	1.20	1.10	1.00	0.90	0.79	0.68	0.56
R-404A	1.58	1.49	1.39	1.30	1.20	1.10	1.00	0.90	0.79	0.68	0.57
R-407A	1.42	1.36	1.29	1.22	1.15	1.07	1.00	0.92	0.84	0.76	0.67
R-407C	1.45	1.38	1.30	1.23	1.15	1.08	1.00	0.92	0.84	0.75	0.67
R-407F	1.42	1.35	1.28	1.21	1.14	1.07	1.00	0.93	0.85	0.78	0.70
R-410A	N/A										
R-507	1.54	1.45	1.36	1.27	1.18	1.09	1.00	0.90	0.80	0.69	0.56

Liquid capacity is based on 110°F (43°C) condensing temperature, 100°F (38°C) liquid temperature and 40°F (5°C) evaporating temperature. For each 10°F (5°C) reduction in evaporating temperature, capacities are reduced by approximately 1.5%.

7V SERIES – LIQUID CAPACITY IN METRIC UNITS

Type	Port Size mm	kW of Refrigeration																											
		22					134a					401A					402A					404A							
		Pressure Drop - bar																											
		0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4			
7V3	2.5	2.06	2.48	3.50	4.28	4.93	1.92	2.31	3.26	3.99	4.60	2.05	2.47	3.48	4.25	4.91	1.39	1.68	2.36	2.89	3.33	1.33	1.60	2.26	2.76	3.19			
7V4	3	2.54	3.05	4.29	5.24	6.04	2.37	2.84	4.00	4.89	5.63	2.53	3.03	4.27	5.21	6.00	1.72	2.06	2.90	3.54	4.08	1.64	1.97	2.77	3.39	3.90			
7V8	6.5	9.30	11.30	16.23	20.07	23.33	8.68	10.54	15.15	18.73	21.77	9.26	11.24	16.15	19.97	23.21	6.28	7.62	10.96	13.54	15.74	5.99	7.27	10.45	12.92	15.02			
7V10	8	18.79	22.55	31.66	38.62	44.46	17.53	21.03	29.53	36.02	41.48	18.70	22.43	31.50	38.42	44.24	12.71	15.24	21.40	26.11	30.06	12.16	14.59	20.49	24.99	28.77			
7V13	10	19.69	23.32	33.60	40.95	47.59	18.37	21.75	31.35	38.21	44.40	19.59	23.20	33.43	40.74	47.34	13.31	15.75	22.70	27.67	32.15	12.72	15.06	21.70	26.45	30.73			
7V19	15	36.88	44.59	63.52	78.13	90.50	34.42	41.61	59.28	72.91	84.45	36.70	44.36	63.20	77.74	90.04	24.91	30.11	42.90	52.76	61.11	23.79	28.76	40.97	50.39	58.37			
7V23S7	18	44.82	54.03	76.57	93.90	108.52	41.82	50.41	71.44	87.61	101.25	44.59	53.75	76.18	93.42	107.97	30.28	36.50	51.73	63.44	73.31	28.94	34.89	49.44	60.63	70.07			

Type	Port Size mm	kW of Refrigeration																									
		407A					407C					407F					410A					507					
		Pressure Drop - bar																									
		0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4	0.07	0.1	0.2	0.3	0.4	
7V3	2.5	1.79	2.15	3.03	3.71	4.27	1.94	2.34	3.30	4.03	4.65	1.77	2.13	3.00	3.67	4.23	N/A					1.25	1.50	2.12	2.59	2.99	
7V4	3	2.20	2.64	3.72	4.54	5.23	2.39	2.87	4.04	4.94	5.69	2.18	2.62	3.68	4.49	5.18						1.54	1.85	2.60	3.18	3.66	
7V8	6.5	8.05	9.78	14.05	17.37	20.19	8.75	10.63	15.28	18.89	21.96	7.97	9.68	13.91	17.20	19.99						5.62	6.83	9.81	12.13	14.10	
7V10	8	16.29	19.55	27.45	33.48	38.55	17.72	21.26	29.85	36.41	41.92	16.12	19.34	27.16	33.13	38.15						11.42	13.69	19.23	23.46	27.01	
7V13	10	17.06	20.20	29.12	35.48	41.23	18.56	21.97	31.66	38.58	44.84	16.89	19.99	28.82	35.12	40.81						12.32	14.59	21.03	25.62	29.78	
7V19	15	31.94	38.62	55.02	67.67	78.38	34.74	41.99	59.82	73.59	85.23	31.62	38.22	54.45	66.98	77.58						22.33	27.00	38.47	47.31	54.80	
7V23S7	18	38.83	46.81	66.35	81.36	94.03	42.22	50.90	72.14	88.47	102.25	38.43	46.33	65.66	80.52	93.06						27.17	32.75	46.42	56.93	65.79	

Minimum operating capacity is at one psi pressure drop for pilot operated valves.

REFRIGERANT LIQUID TEMPERATURE CORRECTION FACTORS

Refrigerants	Temperature °C										
	5	10	15	21	27	32	38	43	48	54	60
R-22	1.33	1.27	1.22	1.17	1.11	1.06	1.00	0.94	0.89	0.83	0.77
R-134a	1.39	1.33	1.26	1.20	1.13	1.07	1.00	0.93	0.87	0.80	0.73
R-401A	1.34	1.29	1.23	1.17	1.12	1.06	1.00	0.94	0.88	0.82	0.75
R-402A	1.57	1.48	1.39	1.29	1.20	1.10	1.00	0.90	0.79	0.68	0.56
R-404A	1.58	1.49	1.39	1.30	1.20	1.10	1.00	0.90	0.79	0.68	0.57
R-407A	1.42	1.36	1.29	1.22	1.15	1.07	1.00	0.92	0.84	0.76	0.67
R-407C	1.45	1.38	1.30	1.23	1.15	1.08	1.00	0.92	0.84	0.75	0.67
R-407F	1.42	1.35	1.28	1.21	1.14	1.07	1.00	0.93	0.85	0.78	0.70
R-410A	N/A										
R-507	1.54	1.45	1.36	1.27	1.18	1.09	1.00	0.90	0.80	0.69	0.56

Liquid capacity is based on 110°F (43°C) condensing temperature, 100°F (38°C) liquid temperature and 40°F (5°C) evaporating temperature. For each 10°F (5°C) reduction in evaporating temperature, capacities are reduced by approximately 1.5%.

7V SERIES – DISCHARGE GAS CAPACITY IN IP UNITS

Type	Port Size Inches	Tons of Refrigeration																	
		22						134a						401A					
		Pressure Drop - psi																	
		2	5	10	25	50	100	2	5	10	25	50	100	2	5	10	25	50	100
7V3	0.098	0.18	0.28	0.40	0.65	0.87	1.09	0.15	0.24	0.33	0.53	0.68	0.77	0.15	0.24	0.34	0.53	0.69	0.78
7V4	0.118	0.22	0.35	0.49	0.77	1.03	1.30	0.19	0.29	0.41	0.63	0.81	0.93	0.19	0.30	0.42	0.63	0.82	0.94
7V8	0.25	0.76	1.22	1.76	2.88	3.82	4.69	0.63	1.02	1.47	2.33	2.95	3.20	0.63	1.03	1.47	2.35	2.98	3.26
7V10	0.31	1.66	2.60	3.65	6.50	8.68	10.81	1.39	2.18	3.07	5.27	6.76	7.60	1.40	2.20	3.09	5.31	6.83	7.73
7V13	0.39	1.69	2.67	3.79	6.37	8.57	10.89	1.42	2.24	3.18	5.19	6.75	7.89	1.42	2.26	3.19	5.23	6.82	8.01
7V19	0.59	3.10	4.94	7.04	11.48	15.49	19.82	2.59	4.14	5.90	9.37	12.26	14.53	2.60	4.16	5.92	9.44	12.37	14.73
7V23S7	0.71	3.83	6.07	8.61	14.87	19.87	24.81	3.21	5.10	7.22	12.07	15.50	17.49	3.23	5.12	7.26	12.16	15.66	17.78

Bold italic font number means at this pressure drop and conditions the capacity goes 'critical.'

Minimum operating capacity is at one psi pressure drop for pilot operated valves.

7V SERIES – DISCHARGE GAS CAPACITY IN IP UNITS (cont.)

Type	Port Size Inches	Tons of Refrigeration																	
		402A						404A						407A					
		Pressure Drop - psi																	
		2	5	10	25	50	100	2	5	10	25	50	100	2	5	10	25	50	100
7V3	0.098	0.16	0.25	0.35	0.55	0.78	1.00	0.15	0.24	0.34	0.56	0.75	0.96	0.17	0.27	0.38	0.62	0.83	1.05
7V4	0.118	0.19	0.30	0.43	0.67	0.92	1.19	0.19	0.30	0.42	0.66	0.89	1.14	0.21	0.33	0.47	0.73	0.99	1.25
7V8	0.25	0.67	1.08	1.56	2.51	3.43	4.33	0.65	1.05	1.51	2.47	3.31	4.15	0.72	1.17	1.68	2.76	3.66	4.52
7V10	0.31	1.44	2.26	3.18	4.98	7.75	9.92	1.40	2.20	3.09	5.57	7.50	9.53	1.58	2.47	3.47	6.21	8.31	10.41
7V13	0.39	1.48	2.34	3.32	5.25	7.64	9.92	1.44	2.28	3.22	5.45	7.39	9.54	1.61	2.55	3.61	6.08	8.20	10.47
7V19	0.59	2.72	4.35	6.19	9.89	13.79	18.01	2.64	4.22	6.02	9.82	13.34	17.33	2.96	4.72	6.72	10.96	14.82	19.04
7V23S7	0.71	3.36	5.32	7.54	11.96	17.76	22.75	3.26	5.17	7.33	12.74	17.16	21.85	3.65	5.79	8.21	14.21	19.02	23.88

Type	Port Size Inches	Tons of Refrigeration																	
		407C						407F						507					
		Pressure Drop - psi																	
		2	5	10	25	50	100	2	5	10	25	50	100	2	5	10	25	50	100
7V3	0.098	0.18	0.28	0.39	0.60	0.80	0.99	0.17	0.26	0.37	0.56	0.75	0.93	0.15	0.24	0.34	0.53	0.75	0.96
7V4	0.118	0.22	0.34	0.48	0.75	1.01	1.26	0.21	0.32	0.45	0.71	0.95	1.19	0.19	0.30	0.42	0.65	0.89	1.15
7V8	0.25	0.74	1.20	1.72	2.82	3.72	4.54	0.70	1.13	1.63	2.66	3.52	4.30	0.65	1.05	1.51	2.44	3.32	4.18
7V10	0.31	1.62	2.54	3.57	6.34	8.45	10.49	1.53	2.39	3.36	5.99	7.98	9.92	1.40	2.19	3.08	4.83	7.51	9.58
7V13	0.39	1.65	2.61	3.70	6.22	8.36	10.58	1.56	2.47	3.49	5.87	7.89	10.00	1.43	2.27	3.22	5.09	7.40	9.59
7V19	0.59	3.03	4.83	6.89	11.21	15.11	19.27	2.86	4.56	6.50	10.57	14.26	18.20	2.64	4.22	6.01	9.59	13.35	17.40
7V23S7	0.71	3.75	5.94	8.42	14.52	19.36	24.08	3.53	5.60	7.94	13.70	18.28	22.76	3.26	5.16	7.32	11.60	17.19	21.97

EVAPORATING TEMPERATURE CORRECTION FACTORS

Evaporator Temperature °F	40	30	20	10	0	-10	-20	-30	-40
Multiplier	1.00	0.96	0.93	0.90	0.87	0.84	0.81	0.78	0.75

Capacities based on 110°F (43°C) condensing temperature, isentropic compression plus 50°F (28°C), 40°F (5°C) evaporator and 65°F (18°C) suction gas. For capacities at other conditions, use the multipliers in table above.

7V SERIES – DISCHARGE GAS CAPACITY IN METRIC UNITS

Type	Port Size mm	kW of Refrigeration																	
		22						134a						401A					
		Pressure Drop - bar																	
		0.1	0.2	0.4	0.8	1.6	3.5	0.1	0.2	0.4	0.8	1.6	3.5	0.1	0.2	0.4	0.8	1.6	3.5
7V3	2.5	0.54	0.76	1.07	1.51	2.08	2.89	0.45	0.64	0.90	1.27	1.69	2.25	0.45	0.64	0.90	1.27	1.71	2.27
7V4	3	0.67	0.94	1.32	1.86	2.62	3.65	0.56	0.79	1.11	1.56	2.13	2.86	0.57	0.80	1.12	1.57	2.15	2.88
7V8	6.5	2.25	3.24	4.65	6.69	9.82	13.52	1.88	2.71	3.89	5.59	7.95	10.42	1.89	2.71	3.90	5.60	8.01	10.54
7V10	8	4.98	6.99	9.82	13.79	22.11	30.69	4.19	5.88	8.26	11.60	17.98	23.88	4.22	5.92	8.32	11.68	18.11	24.12
7V13	10	4.96	7.15	10.13	14.35	21.66	30.32	4.17	6.00	8.50	12.04	17.69	23.86	4.19	6.03	8.55	12.10	17.81	24.09
7V19	15	9.24	13.17	18.76	26.72	39.01	54.82	7.74	11.03	15.71	22.39	31.92	43.33	7.77	11.07	15.78	22.48	32.14	43.73
7V23S7	18	11.46	16.24	23.02	32.62	50.60	70.29	9.62	13.63	19.31	27.37	41.17	54.76	9.66	13.70	19.41	27.51	41.46	55.31

Type	Port Size mm	kW of Refrigeration																	
		402A						404A						407A					
		Pressure Drop - bar																	
		0.1	0.2	0.4	0.8	1.6	3.5	0.1	0.2	0.4	0.8	1.6	3.5	0.1	0.2	0.4	0.8	1.6	3.5
7V3	2.5	0.47	0.66	0.93	1.32	1.86	2.59	0.46	0.64	0.91	1.28	1.81	2.50	0.51	0.72	1.02	1.44	1.99	2.77
7V4	3	0.58	0.82	1.15	1.62	2.28	3.26	0.57	0.80	1.12	1.58	2.22	3.15	0.64	0.90	1.26	1.77	2.50	3.49
7V8	6.5	1.99	2.86	4.11	5.91	8.50	12.12	1.93	2.78	3.99	5.74	8.25	11.71	2.15	3.10	4.45	6.39	9.38	12.95
7V10	8	4.34	6.09	8.55	12.01	16.87	27.44	4.22	5.92	8.32	11.69	16.41	26.52	4.74	6.66	9.35	13.13	21.12	29.38
7V13	10	4.35	6.26	8.87	12.56	17.79	27.02	4.22	6.09	8.62	12.21	17.29	26.14	4.73	6.82	9.66	13.68	20.68	29.01
7V19	15	8.12	11.57	16.49	23.49	33.47	48.80	7.89	11.24	16.02	22.82	32.51	47.23	8.82	12.57	17.91	25.51	37.24	52.44
7V23S7	18	10.04	14.23	20.17	28.58	40.51	62.83	9.76	13.83	19.60	27.78	39.37	60.73	10.93	15.49	21.95	31.11	48.32	67.29

Bold italic font number means at this pressure drop and conditions the capacity goes 'critical.'

Minimum operating capacity is at one psi pressure drop for pilot operated valves.

7V SERIES – DISCHARGE GAS CAPACITY IN METRIC UNITS (cont.)

Type	Port Size mm	407C						407F						507					
		0.1	0.2	0.4	0.8	1.6	3.5	0.1	0.2	0.4	0.8	1.6	3.5	0.1	0.2	0.4	0.8	1.6	3.5
7V3	2.5	0.52	0.74	1.04	1.47	2.04	2.82	0.49	0.70	0.98	1.39	1.92	2.66	0.45	0.64	0.91	1.28	1.80	2.50
7V4	3	0.65	0.92	1.29	1.82	2.56	3.56	0.62	0.87	1.22	1.71	2.41	3.36	0.57	0.80	1.12	1.57	2.21	3.15
7V8	6.5	2.20	3.17	4.55	6.54	9.58	13.17	2.08	2.99	4.30	6.18	9.04	12.44	1.93	2.78	3.99	5.73	8.24	11.73
7V10	8	4.87	6.84	9.60	13.48	21.59	29.90	4.59	6.44	9.05	12.70	20.36	28.23	4.21	5.91	8.30	11.65	16.36	26.56
7V13	10	4.85	6.99	9.91	14.03	21.15	29.55	4.58	6.60	9.34	13.23	19.95	27.90	4.22	6.08	8.60	12.19	17.26	26.16
7V19	15	9.04	12.87	18.34	26.13	38.09	53.45	8.53	12.15	17.31	24.66	35.93	50.45	7.88	11.23	15.99	22.79	32.46	47.26
7V23S7	18	11.20	15.88	22.51	31.90	49.40	68.49	10.57	14.98	21.23	30.09	46.60	64.66	9.74	13.80	19.56	27.72	39.29	60.82

EVAPORATING TEMPERATURE CORRECTION FACTORS

Evaporator Temperature °C	5	1	-7	-12	-18	-23	-29	-34	-40
Multiplier	1.00	0.96	0.93	0.90	0.87	0.84	0.81	0.78	0.75

Capacities based on 110°F (43°C) condensing temperature, isentropic compression plus 50°F (28°C), 40°F (5°C) evaporator and 65°F (18°C) suction gas. For capacities at other conditions, use the multipliers in table above.

7V SERIES – SUCTION CAPACITY IN IP UNITS

Type	Port Size Inches	Tons of Refrigeration																													
		22						134a						401A						402A						404A					
		Pressure Drop - psi																													
		40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20	-40
7V3	0.098	0.08	0.07	0.05	0.04	0.03	0.06	0.05	0.04	0.03	0.02	0.07	0.05	0.04	0.03	0.02	0.07	0.06	0.04	0.03	0.02	0.07	0.05	0.04	0.03	0.02	0.07	0.05	0.04	0.03	0.02
7V4	0.118	0.10	0.08	0.07	0.05	0.04	0.08	0.06	0.05	0.03	0.03	0.08	0.07	0.05	0.04	0.03	0.09	0.07	0.05	0.04	0.03	0.09	0.07	0.05	0.04	0.03	0.09	0.07	0.05	0.04	0.03
7V8	0.25	0.34	0.27	0.21	0.16	0.12	0.26	0.20	0.15	0.11	0.08	0.27	0.21	0.16	0.12	0.08	0.30	0.23	0.17	0.13	0.09	0.30	0.22	0.17	0.12	0.09	0.30	0.22	0.17	0.12	0.09
7V10	0.31	0.78	0.63	0.50	0.38	0.29	0.61	0.47	0.35	0.26	0.19	0.63	0.49	0.38	0.28	0.21	0.67	0.53	0.41	0.31	0.23	0.65	0.51	0.39	0.29	0.21	0.65	0.51	0.39	0.29	0.21
7V13	0.39	0.78	0.63	0.49	0.38	0.28	0.60	0.46	0.35	0.26	0.18	0.63	0.49	0.38	0.28	0.20	0.68	0.53	0.41	0.31	0.23	0.65	0.50	0.38	0.29	0.21	0.65	0.50	0.38	0.29	0.21
7V19	0.59	1.42	1.13	0.88	0.68	0.51	1.09	0.83	0.62	0.46	0.32	1.13	0.88	0.67	0.50	0.36	1.22	0.95	0.73	0.55	0.40	1.18	0.91	0.69	0.51	0.37	1.18	0.91	0.69	0.51	0.37
7V23S7	0.71	1.78	1.42	1.11	0.85	0.64	1.37	1.05	0.79	0.58	0.41	1.42	1.10	0.84	0.63	0.46	1.53	1.19	0.92	0.69	0.51	1.48	1.14	0.87	0.65	0.47	1.48	1.14	0.87	0.65	0.47

Type	Port Size Inches	Tons of Refrigeration																													
		407A						407C						407F						410A						507					
		Pressure Drop - psi																													
		40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20	-40	40	20	0	-20	-40					
7V3	0.098	0.08	0.06	0.05	0.03	0.02	0.08	0.06	0.05	0.04	0.03	0.07	0.06	0.04	0.03	0.02	N/A						0.07	0.05	0.04	0.03	0.02				
7V4	0.118	0.10	0.07	0.06	0.04	0.03	0.10	0.08	0.06	0.04	0.03	0.09	0.07	0.06	0.04	0.03							0.09	0.07	0.05	0.04	0.03				
7V8	0.25	0.31	0.24	0.18	0.13	0.10	0.32	0.25	0.19	0.14	0.10	0.30	0.23	0.18	0.13	0.09							0.28	0.22	0.16	0.12	0.09				
7V10	0.31	0.72	0.56	0.43	0.32	0.24	0.74	0.57	0.44	0.33	0.24	0.70	0.54	0.42	0.31	0.23							0.65	0.50	0.38	0.29	0.21				
7V13	0.39	0.72	0.56	0.43	0.32	0.23	0.73	0.57	0.44	0.33	0.24	0.70	0.54	0.41	0.31	0.22							0.65	0.50	0.38	0.29	0.21				
7V19	0.59	1.30	1.01	0.77	0.57	0.41	1.33	1.03	0.78	0.58	0.42	1.26	0.98	0.74	0.55	0.39							1.18	0.91	0.69	0.51	0.37				
7V23S7	0.71	1.63	1.26	0.96	0.72	0.52	1.66	1.29	0.99	0.74	0.53	1.58	1.22	0.93	0.69	0.50							1.47	1.14	0.87	0.65	0.47				

Minimum operating capacity is at one psi pressure drop for pilot operated valves.

7V SERIES – SUCTION CAPACITY IN METRIC UNITS

Type	Port Size mm	kW of Refrigeration																									
		22					134a					401A					402A					404A					
		Pressure Drop - bar																									
		5	-7	-18	-29	-40	5	-7	-18	-29	-40	5	-7	-18	-29	-40	5	-7	-18	-29	-40	5	-7	-18	-29	-40	
7V3	2.5	0.30	0.24	0.19	0.14	0.11	0.23	0.18	0.13	0.10	0.07	0.24	0.18	0.14	0.11	0.08	0.25	0.20	0.15	0.12	0.08	0.24	0.19	0.15	0.11	0.08	
7V4	3	0.37	0.30	0.23	0.18	0.14	0.29	0.22	0.17	0.12	0.09	0.30	0.23	0.18	0.13	0.10	0.32	0.25	0.19	0.14	0.11	0.31	0.24	0.18	0.14	0.10	
7V8	6.5	1.20	0.95	0.74	0.56	0.42	0.92	0.70	0.52	0.38	0.27	0.95	0.73	0.55	0.41	0.29	1.04	0.81	0.61	0.46	0.33	1.00	0.77	0.58	0.43	0.31	
7V10	8	2.76	2.21	1.74	1.35	1.02	2.13	1.65	1.25	0.92	0.66	2.22	1.74	1.33	1.00	0.73	2.36	1.85	1.43	1.08	0.80	2.28	1.78	1.36	1.02	0.74	
7V13	10	2.79	2.18	1.72	1.32	1.00	2.15	1.62	1.22	0.90	0.64	2.24	1.71	1.31	0.98	0.72	2.42	1.85	1.43	1.08	0.79	2.32	1.76	1.34	1.00	0.73	
7V19	15	4.99	3.97	3.10	2.38	1.78	3.83	2.93	2.20	1.61	1.14	3.98	3.09	2.35	1.75	1.26	4.30	3.35	2.57	1.93	1.41	4.16	3.21	2.44	1.81	1.31	
7V23S7	18	6.25	4.98	3.91	3.00	2.25	4.81	3.69	2.78	2.04	1.45	4.99	3.89	2.97	2.22	1.61	5.37	4.19	3.22	2.43	1.78	5.19	4.02	3.06	2.28	1.65	

Type	Port Size mm	kW of Refrigeration																								
		407A					407C					407F					410A					507				
		Pressure Drop - bar																								
		5	-7	-18	-29	-40	5	-7	-18	-29	-40	5	-7	-18	-29	-40	0.07	0.1	0.2	0.3	0.4	5	-7	-18	-29	-40
7V3	2.5	0.27	0.21	0.16	0.12	0.09	0.28	0.22	0.17	0.12	0.09	0.26	0.20	0.16	0.12	0.08	N/A					0.24	0.19	0.14	0.11	0.08
7V4	3	0.34	0.26	0.20	0.15	0.11	0.35	0.27	0.21	0.16	0.11	0.33	0.26	0.20	0.15	0.11						0.30	0.24	0.18	0.14	0.10
7V8	6.5	1.10	0.85	0.64	0.47	0.34	1.12	0.86	0.65	0.48	0.35	1.07	0.82	0.62	0.45	0.32						1.00	0.77	0.58	0.43	0.31
7V10	8	2.53	1.97	1.51	1.13	0.83	2.59	2.02	1.55	1.17	0.85	2.45	1.91	1.46	1.09	0.79						2.27	1.77	1.35	1.01	0.74
7V13	10	2.56	1.95	1.49	1.11	0.81	2.61	1.99	1.53	1.14	0.83	2.49	1.89	1.44	1.07	0.78						2.31	1.75	1.34	1.00	0.73
7V19	15	4.58	3.54	2.69	2.00	1.44	4.67	3.62	2.75	2.05	1.48	4.45	3.43	2.60	1.92	1.38						4.14	3.20	2.43	1.80	1.30
7V23S7	18	5.73	4.44	3.39	2.53	1.83	5.85	4.55	3.47	2.59	1.88	5.56	4.31	3.27	2.43	1.76						5.17	4.00	3.05	2.27	1.65

Minimum operating capacity is at one psi pressure drop for pilot operated valves.

Installation and Service

INSTALLATION INSTRUCTIONS

To ensure the peak performance, solenoid valves must be selected and applied correctly, however, proper installation procedures are equally important. The following are essential points for correct installation:

- The valves can be mounted in any position, except with the coil pointing downwards.
- The flow direction is indicated by an arrow on the valve body.
- The 7V Series valves with ODF solder connections can be installed on the system without disassembling thanks to extended ends copper tube. Nevertheless all necessary precautions, like use of a wet cloth and a solder with low melting point, should be taken to avoid excessive overheating. The flame should always be directed away from the valve body to prevent any damage to the diaphragm and

O-ring gasket.

- Parker Sporlan recommends that the valves should be protected by filters mounted upstream of the valve.
- To allow coil removal, 2.4" (60mm) clearance is necessary.
- Mounting brackets are available on demand

WIRING

Please check the electrical specifications of the coil to be sure they correspond to the available electrical service. Wiring and fusing must comply with the prevailing wiring codes and local legislation.

PACKAGING INFORMATION

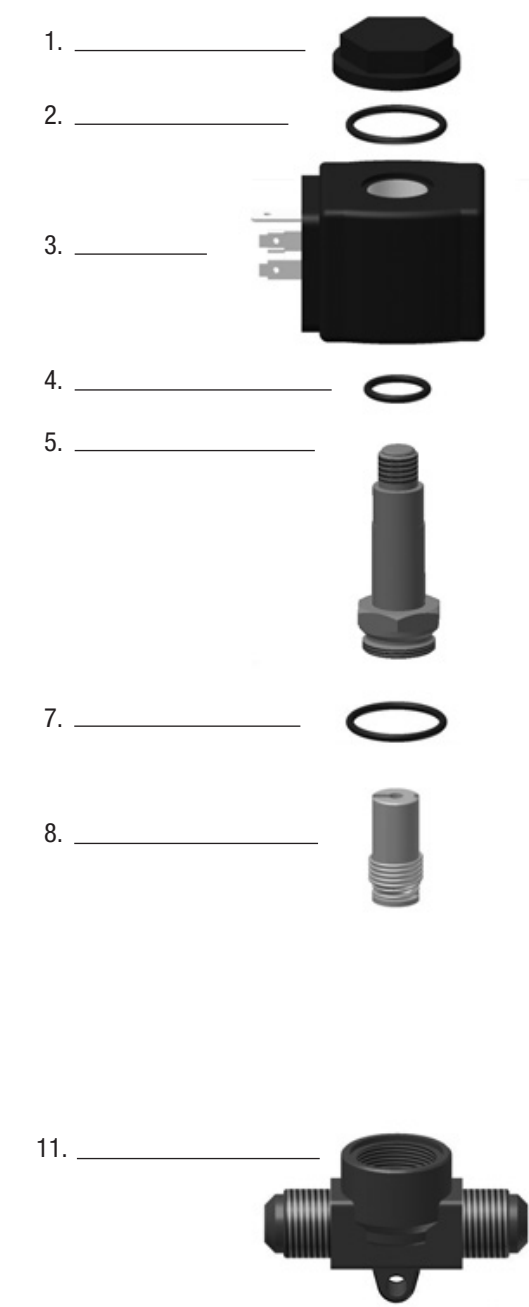
Valve bodies, coils and DIN connectors are delivered in individual boxes. The enclosing tube gasket (4), coil nut (1) and coil nut O-ring (2) are delivered with valve bodies.

Valve Type	Std. Master Carton Qty.	Shipping Weight	
		Individual Box lbs. (kg)	Master Carton lbs. (kg)
7V3	30	0.44 (0.20)	13.2 (6.00)
7V4	30	0.53 (0.24)	15.9 (7.20)
7V8F	30	0.66 (0.30)	19.8 (9.00)
7V8S/SM	20	0.66 (0.30)	13.2 (6.00)
7V10F	30	0.82 (0.37)	24.5 (11.10)
7V10S/SM	20	0.82 (0.37)	16.3 (7.40)
7V13F	30	1.06 (0.48)	31.0 (14.40)
7V13S/SM	20	1.06 (0.48)	21.2 (9.60)
7V19F	30	1.32 (0.60)	39.7 (18.00)
7V19S/SM	20	1.32 (0.60)	26.5 (12.00)
7V23	20	1.54 (0.70)	31.7 (14.00)
C300392*	72	0.44 (0.20)	31.7 (14.00)
C300448	72	0.44 (0.20)	31.7 (14.00)

* Coil only without PG DIN connector.

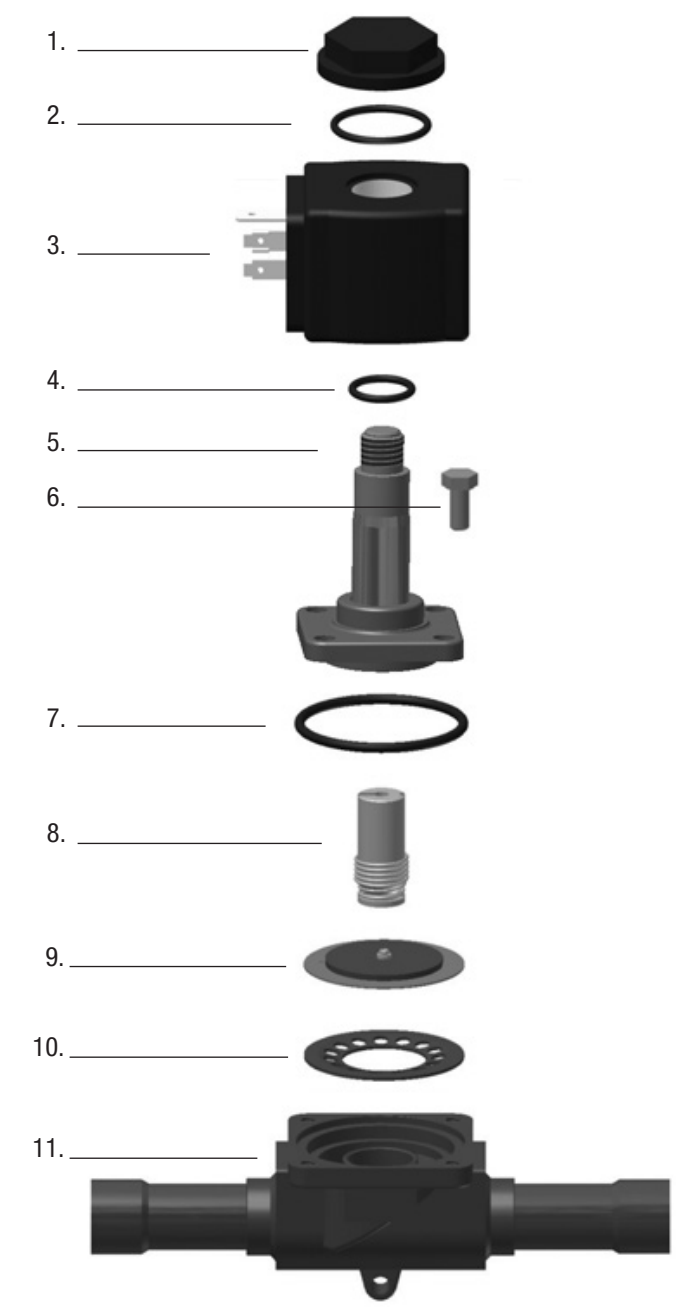
Drawings and Dimensions

2-WAY N.C. DIRECT CONTROL



- 1. Coil Nut
- 2. O-Ring
- 3. Coil
- 4. O-Ring

2-WAY N.C. PILOT CONTROL

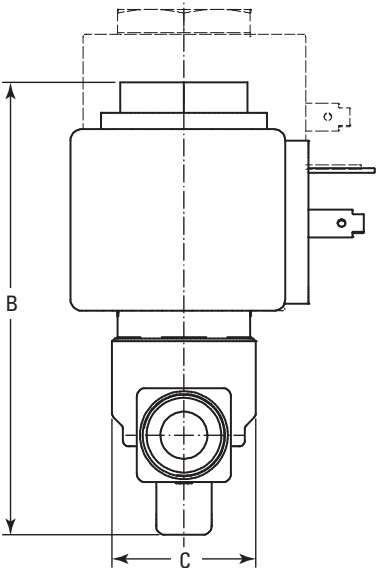
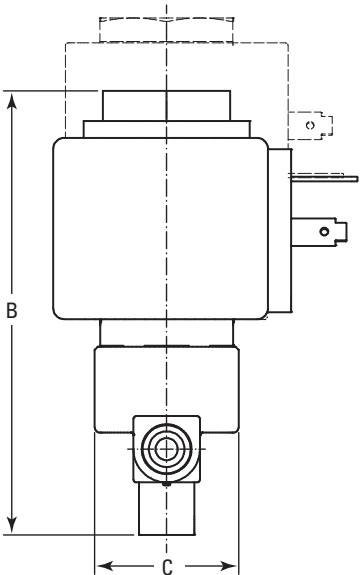
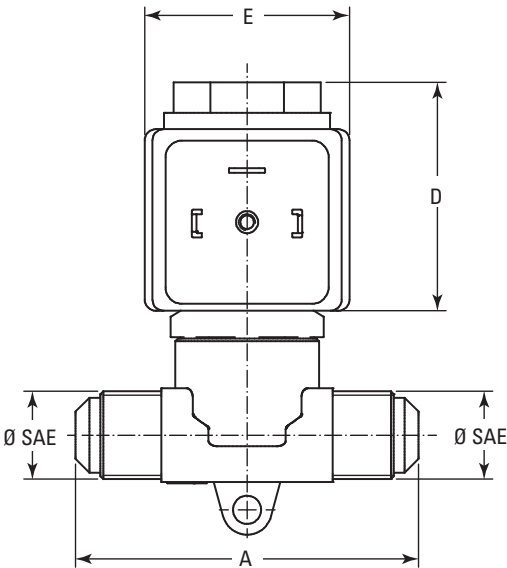
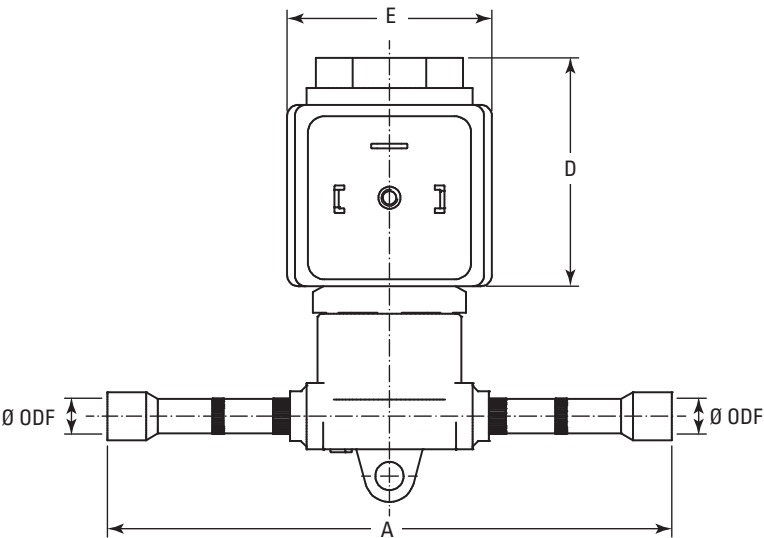


- 5. Enclosing Tube
- 6. Hexagon Top Screw
- 7. Gasket
- 8. Plunger
- 9. Diaphragm
- 10. Cap for Diaphragm
- 11. Body

7V3 & 7V4 SERIES

DIMENSIONS

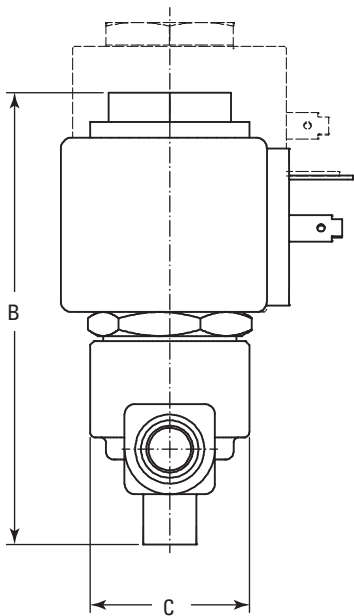
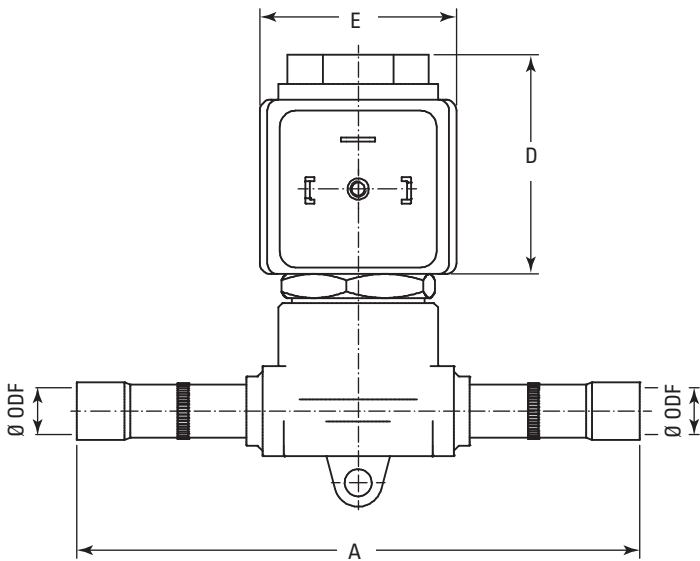
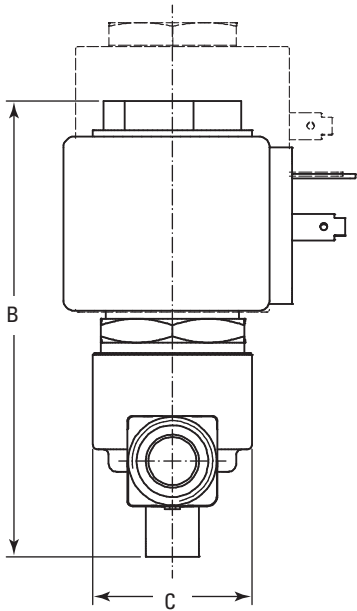
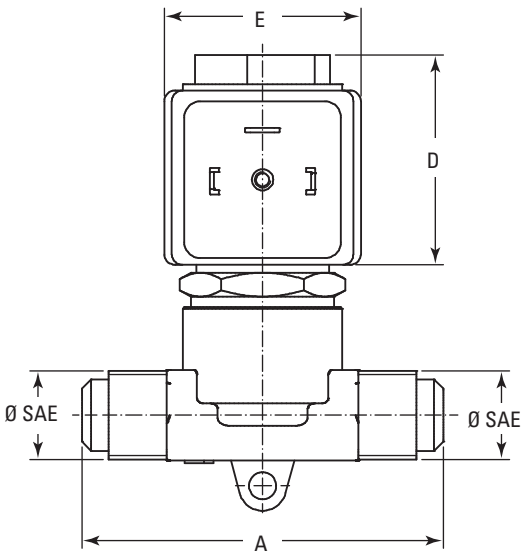
Valve Type	Connections	A	B	C	D	E
		Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)
7V3, 7V4	1/4" SAE	2.40 (61)	3.35 (85.2)	1.02 (26)	1.86 (47.3)	1.25 (32)
7V4	3/8" SAE	2.44 (62)	3.35 (85.2)	1.02 (26)	1.86 (47.3)	1.25 (32)
7V3, 7V4	1/4" ODF	4.00 (102)	3.35 (85.2)	1.02 (26)	1.86 (47.3)	1.25 (32)
7V3, 7V4	6mm ODF	4.00 (102)	3.35 (85.2)	1.02 (26)	1.86 (47.3)	1.25 (32)
7V4	3/8" ODF	3.98 (101)	3.35 (85.2)	1.02 (26)	1.86 (47.3)	1.25 (32)



7V8 SERIES

DIMENSIONS

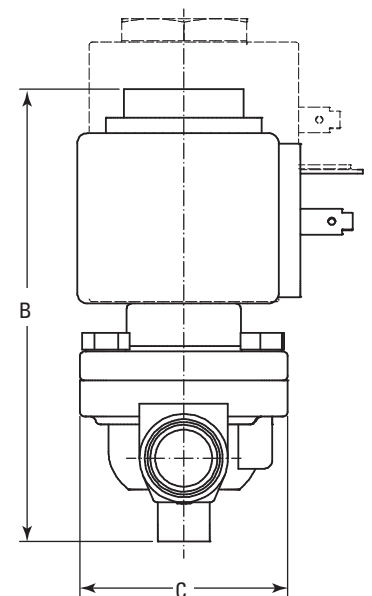
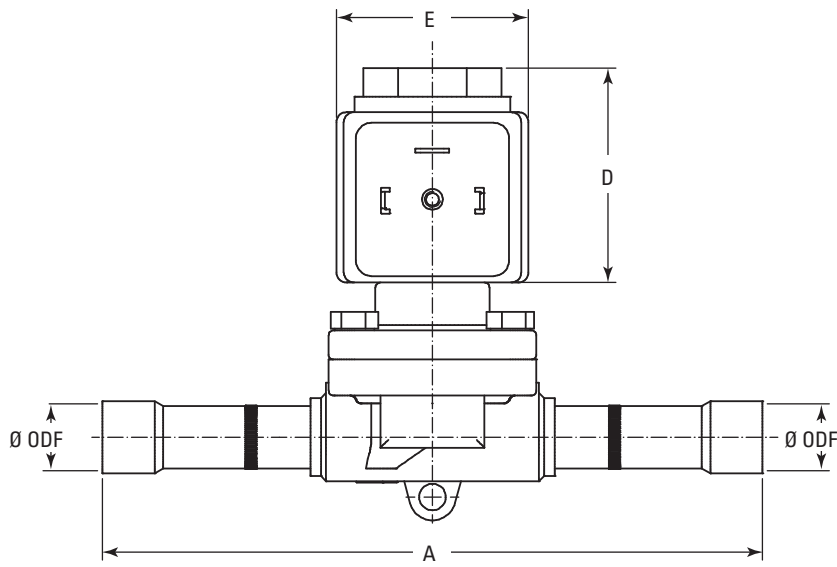
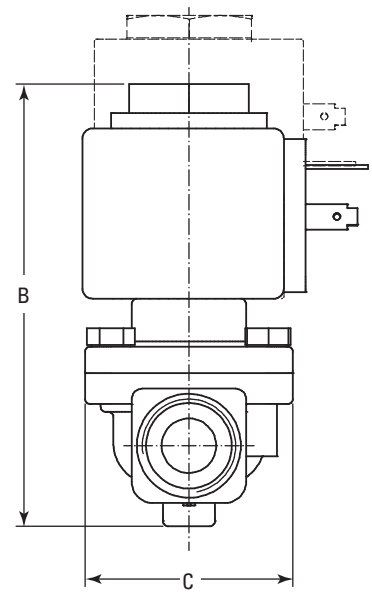
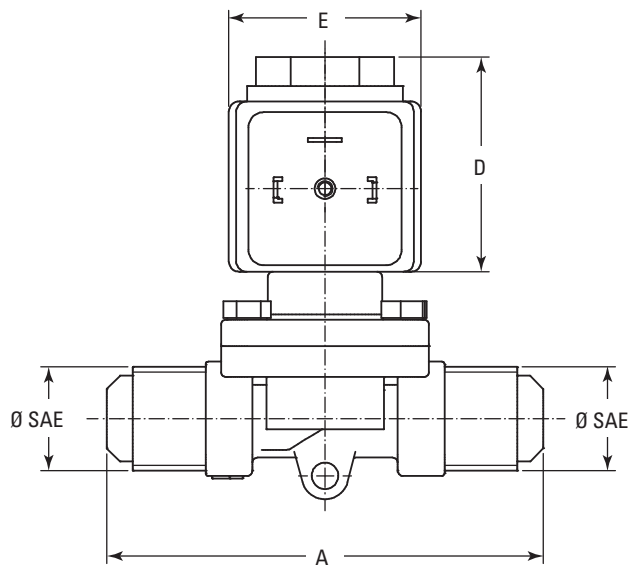
Valve Type	Connections	A	B	C	D	E
		Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)
7V8	3/8" SAE	2.68 (68)	3.50 (88.8)	1.18 (30)	1.86 (47.3)	1.26 (32)
	10mm ODF	4.17 (106)	3.50 (88.8)	1.18 (30)	1.86 (47.3)	1.26 (32)
	3/8" ODF	4.17 (106)	3.50 (88.8)	1.18 (30)	1.86 (47.3)	1.26 (32)
	1/2" ODF	4.84 (123)	3.50 (88.8)	1.18 (30)	1.86 (47.3)	1.26 (32)
	12mm ODF	4.84 (123)	3.50 (88.8)	1.18 (30)	1.86 (47.3)	1.26 (32)



7V10, 7V13, 7V19 & 7V23 SERIES

DIMENSIONS

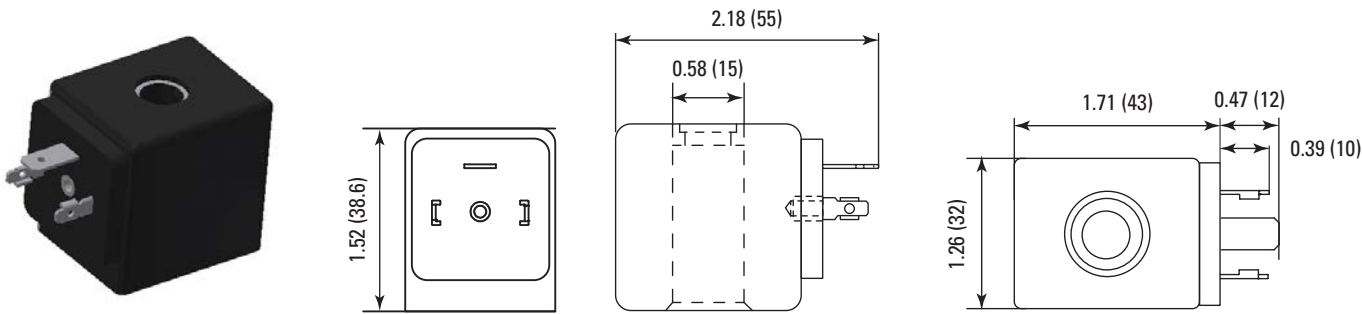
Valve Type	Connections	A	B	C	D	E
		Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)	Inches (mm)
7V10	3/8" SAE	3.15 (80.0)	3.52 (89.4)	1.18 (30)	1.86 (47.3)	1.26 (32)
7V10, 7V13	1/2" SAE	3.31 (84.0)	3.52 (89.4)	1.18 (30)	1.86 (47.3)	1.26 (32)
7V19	5/8" SAE	4.10 (104)	3.70 (94.0)	2.00 (51)	1.86 (47.3)	1.26 (32)
7V10	10mm - 3/8" ODF	4.37 (111)	3.52 (89.4)	1.18 (30)	1.86 (47.3)	1.26 (32)
7V13	12mm - 1/2" ODF	5.00 (127)	3.52 (89.4)	1.18 (30)	1.86 (47.3)	1.26 (32)
7V13, 7V19	16mm - 5/8" ODF	6.02 (153)	4.10 (104)	2.00 (51)	1.86 (47.3)	1.26 (32)
7V23	18mm - 3/4" ODF	6.30 (160)	4.10 (104)	2.00 (51)	1.86 (47.3)	1.26 (32)
7V19, 7V23	22mm - 7/8" ODF	6.70 (170)	4.10 (104)	2.00 (51)	1.86 (47.3)	1.26 (32)
7V23	28mm - 1-1/8" ODF	7.10 (180)	4.10 (104)	2.00 (51)	1.86 (47.3)	1.26 (32)



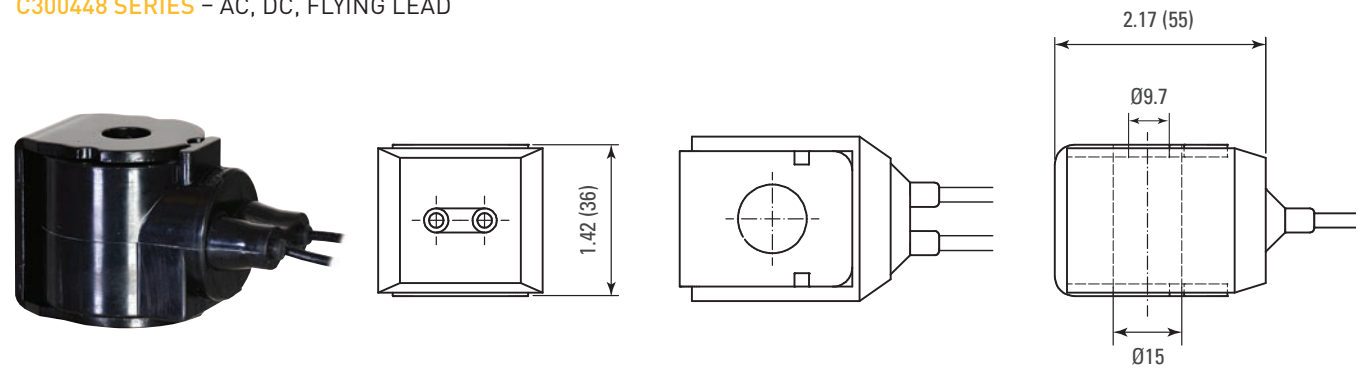
COIL TECHNICAL DRAWINGS

DIMENSIONS: Inches (mm)

C300392 SERIES – AC, DC, PG9 & PG11 CONNECTOR TO BE SOLD SEPARATELY



C300448 SERIES – AC, DC, FLYING LEAD



TOP SPADE (TS) COIL – UNDER CONSTRUCTION

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