

DunAn

Leader of Healthy and Comfortable Environment

COMPONENTS

for Commercial Refrigeration and Air Conditioning

Quick Selection



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4-Way Reversing Valve DSF Series & DSF(S) Series

Application

DSF series electromagnetic 4-way reversing valves are applicable for residential air conditioners, VRVs, module units, unit machines, heat pumps and other refrigeration systems. They can change the flow path of refrigerants by controlling the pilot valve to realize switching cooling and heating mode, and defrosting function for heat pump systems.



Features

- Reliably instantaneous changeover under minimum pressure differential
- Wide range of capacity and connection styles
- Application spectrum has extended into systems under potentially explosive conditions
- DSF(S) stainless steel material usage reduces heat loss and improves efficiency
- Available with special design configuration for systems of heating mode as main function
- Built-in chip energy-saving coil on request

Approvals

Declaration /Certification according to PED, LVD, ATEX and UL

Technical Data

Applicable Refrigerants: R32, R404A, R407C, R410A, R290, R134a, R454B, R513A, R513B, R1234yf, R454A, R454C, R448A, R449A

Relative Humidity: ≤95% R.H.

Medium Temperature: -30°C ~ +135°C

Ambient Temperature: -30°C ~ +55°C

Max. Operating Pressure: 4.5 MPa

Brass DSF Series

Model	Part Number	Port [mm]	Kv [m³/h]	Connection		OPD		System Driving Mode
				D [in.]	E, S, C [in.]	Max. [MPa]	Min. [MPa]	
DSF-4-2203	240005072000	8	1.7	5/16	3/8	3.5	0.25	ON/OFF & Inverter
DSF-9-2230	240009113800	11.1	3.4	3/8	1/2	3.5	0.3	ON/OFF & Inverter
DSF-11B-2230	240011056000	11.5	4.4	1/2	5/8	3.5	0.3	ON/OFF & Inverter
DSF-11E-2201	240011056100	11.5	4.4	3/8	5/8	3.5	0.3	ON/OFF & Inverter
DSF-20-2238	240020108210	17.2	9.5	1/2	3/4	3.5	0.3	ON/OFF & Inverter
DSF-20-2240	240020110600	17.2	9.5	1/2	7/8	3.5	0.3	ON/OFF & Inverter
DSF-34-2241	240034074807	20.9	17.5	3/4	7/8	3.5	0.3	ON/OFF & Inverter
DSF-34-2242	240034075604	20.9	17.5	7/8	1 1/8	3.5	0.3	ON/OFF & Inverter
DSF-50-2220	240050027205	24	19.9	7/8	1 1/8	3.5	0.3	ON/OFF & Inverter
DSF-70-2237	240070019304	28.6	28.5	1	1 1/4	3.5	0.3	ON/OFF & Inverter
DSF-70-2238	240070019715	28.6	28.5	1 1/8	1 3/8	3.5	0.3	ON/OFF & Inverter
DSF-105-2100	240010003100	34.5	39.1	1 1/4	1 1/2	3.5	0.3	ON/OFF & Inverter
DSF-140-2100	240014001900	41	58.5	1 1/2	1 3/4	3.5	0.3	ON/OFF & Inverter
DSF-180-2100	240018001500	46.4	70.4	1 1/2	2 1/8	3.5	0.3	ON/OFF & Inverter
DSF-210-2100	240021000800	50	80.2	2	2 5/8	3.5	0.3	ON/OFF & Inverter

Capacity Table

Model	Capacity [kW]																							
	Pressure Drop ΔP [bar]																							
	R134a		R513A		R407C		R454B		R32		R290													
	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2								
DSF-4	2.5	3.6	2.4	3.4	2.4	3.4	2.3	3.2	3.1	4.4	2.8	4.0	3.7	5.2	3.3	4.8	5.0	7.1	4.4	6.2	4.0	5.6	3.5	4.9
DSF-9	5.9	8.3	5.5	7.7	5.4	7.6	5.1	7.2	7.1	10.0	6.5	9.2	8.4	11.9	7.6	10.7	11.5	16.2	10.1	14.3	9.1	12.8	8.0	11.3
DSF-11	7.1	9.9	6.6	9.2	6.6	9.3	6.2	8.8	8.6	12.0	7.9	11.1	10.2	14.3	9.1	12.9	13.8	19.5	12.3	17.2	10.9	15.4	9.7	13.6
DSF-20	15.1	21.1	13.9	19.5	14.9	21.1	14.1	20.0	18.2	25.5	16.6	23.5	21.4	32.2	19.5	29.1	29.3	41.3	25.9	36.5	23.2	32.7	20.5	28.9
DSF-34	22.5	31.8	20.9	29.4	21.7	30.7	20.6	29.1	27.2	38.2	25.0	35.1	32.3	45.3	29.0	41.0	43.9	61.8	39.0	54.6	34.7	48.9	30.9	43.2
DSF-50	28.5	40.0	26.5	37.2	27.8	39.4	26.4	37.3	34.4	48.3	31.5	44.4	40.8	57.5	36.8	51.7	55.4	78.2	48.9	69.0	43.9	61.9	38.7	54.6
DSF-70	43.9	61.5	40.5	57.0	41.6	58.9	39.8	56.3	52.8	74.4	48.8	68.2	62.7	88.4	56.3	79.8	85.1	120.3	75.3	106.2	67.4	95.2	59.6	84.1
DSF-105	63.3	88.5	58.5	82.5	62.3	88.1	59.1	83.5	76.3	107.3	70.0	98.7	90.3	127.3	81.5	114.0	123.0	173.5	108.5	153.0	97.4	137.3	85.9	121.1
DSF-140	88.5	124.5	81.6	115.2	84.7	119.8	80.2	113.4	106.2	150.3	98.4	138.0	126.4	178.8	114.4	167.9	172.1	243.0	152.0	214.5	136.2	192.3	120.3	169.8
DSF-180	110.5	156.0	102.8	143.8	107.5	152.1	101.8	144.0	133.0	187.4	122.0	172.1	157.6	222.4	142.5	200.7	215.0	302.9	190.1	267.5	170.1	239.8	150.5	211.7
DSF-210	133.5	187.5	123.5	174.0	126.0	178.2	119.3	168.7	161.0	226.4	148.0	208.2	190.5	269.4	171.3	242.4	260.1	366.2	228.9	323.5	205.9	289.8	181.2	256.0

Note: 1) Cond.1: T_c=38°C, T_e=5°C, ΔT_{gr} =5K, ΔT_{ac} =0K; 2) Cond.2: T_c=54.4°C, T_e=7.2°C, ΔT_{gr} =5K, ΔT_{ac} =5K

Model	Capacity [kW]																							
	Pressure Drop ΔP [bar]																							
	R134a		R513A		R407C		R454B		R32		R290													
	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2								
DSF(S)-9M	5.9	8.3	5.5	7.7	5.4	7.6	5.1	7.2	7.1	10.0	6.5	9.2	8.4	11.9	7.6	10.7	11.5	16.2	10.1	14.3	9.1	12.8	8.0	11.3
DSF(S)-14M	9.1	12.9	8.5	12.0	8.8	12.5	8.4	11.8	12.2	17.3	11.0	15.5	13.8	19.4	12.4	17.6	18.2	25.8	17.1	24.2	13.4	19.0	12.3	17.5
DSF(S)-20M	14.2	19.8	12.7	17.7	14.2	19.8	13.9	19.3	20.1	28.3	17.8	25.1	25.5	36.2	23.1	32.8	28.1	39.6	25.4	35.8	23.2	32.5	20.7	29.0
DSF(S)-20	15.1	23.7	15.2	21.2	14.9	21.1	14.1	20.0	24.2	34.0	21.5	30.2	28.4	40.0	25.6	36.3	33.8	47.7	30.7	43.2	27.9	38.9	24.9	34.7
DSF(S)-34M	20.6	28.8	18.5	25.8	16.3	23.7	15.8	21.7	28.4	40.2	24.5	35.7	30.8	43.9	27.9	39.7	40.8	56.2	33.9	48.1	31.0	44.6	29.0	39.9
DSF(S)-34	22.5	31.8	20.9	29.4	21.7	30.7	20.6	29.1	29.1	35.3	24.5	34.4	32.3	45.3	29.0	41.0	43.9	61.8	39.0	54.6	34.7	48.9	30.9	43.2
DSF(S)-50	32.3	44.5	26.5	37.2	34.4	44.5	26.4	37.3	37.3	45.5	31.4	43.9	38.8	53.3	36.8	51.7	55.4	78.2	48.9	69.0	43.9	61.9	38.7	54.6
DSF(S)-70	58.1	80.3	52.1	71.9	43.8	63.6	41.4	58.8	82.3	115.7	73.1	103.0	78.4	105.3	70.3	95.4	105.0	148.8	92.6	131.3	83.8	117.5	76.6	107.3

Note: 1) Cond.1: T_c=38°C, T_e=5°C, ΔT_{gr} =5K, ΔT_{ac} =0K; 2) Cond.2: T_c=54.4°C, T_e=7.2°C, ΔT_{gr} =5K, ΔT_{ac} =5K

Stainless Steel DSF(S) Series

Model	Part Number	Port [mm]	K _v [m ³ /h]	Connection		OPD		System Driving Mode
				D	E, S, C	Max.	Min.	
				[in.]	[in.]	[MPa]	[MPa]	
DSF(S)-9-2201M	240009114301	10.8	3.4	3/8	1/2	3.5	0.3	ON/OFF & Inverter
DSF(S)-14H-2201M	240015005500	12.8	5.1	1/2	5/8	3.5	0.3	ON/OFF & Inverter
DSF(S)-20-2001M	240020100804	15	7.7	1/2	3/4	3.5	0.3	ON/OFF & Inverter
DSF(S)-20-2242C	240020108412	17.2	9.5	1/2	3/4	3.5	0.3	ON/OFF & Inverter
DSF(S)-34-2202M	240034070700	18.1	11.3	5/8	7/8	3.5	0.3	ON/OFF & Inverter
DSF(S)-34-2246C	240034074906	20	16.7	3/4	7/8	3.5	0.3	ON/OFF & Inverter
DSF(S)-34-2242C	240034073503	20	16.7	7/8	1 1/8	3.5	0.3	ON/OFF & Inverter
DSF(S)-50-2215C	240050027110	24	19.9	7/8	1 1/8	3.5	0.3	ON/OFF & Inverter
DSF(S)-70-2261C	240070022704	32	35.9	1	1 1/4	3.5	0.3	ON/OFF & Inverter
DSF(S)-70-2258C	240070021502	32	35.9	1 1/8	1 3/8	3.5	0.3	ON/OFF & Inverter

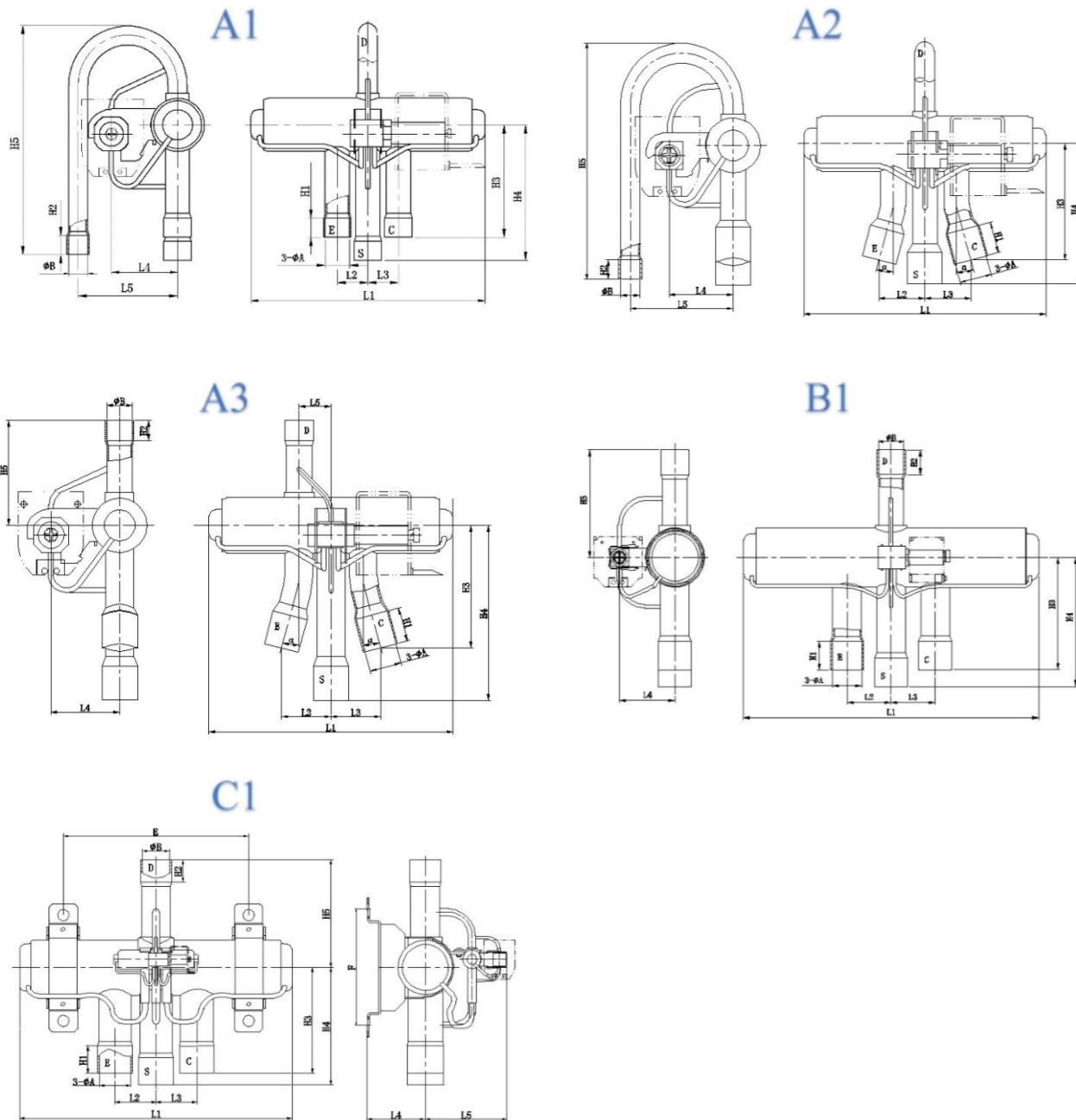
Coil

Model [1]	Code No.	Connection Type	Length [mm]	Supply	Nominal Voltage [V]	Frequency [Hz]	Nominal Power [W]	Insulation Class	IP Grade
DXQ-242-ND ^[2]	244409024217	Spade	-	AC	24	50/60	≤7/5	B	IP54
DXQ-111 ^[2]	244409011103	Wire	250	AC	100	50/60	≤7/5		
DXQ-246 ^[2]	244409024603	Spade	-	AC	115	50/60	≤7/5		
DXQ-957 ^[2]	244409095701	Wire	4000	AC	24	50/60	≤7/5		
DXQ-451 ^[2]	244409045102	Wire	250	AC	100	50/60	≤7/5		
DXQ-280 ^[2]	244409028001	Wire	500	AC	200	50/60	≤7/5		
DXQ-670-EUR ^[2]	244409067002	Wire	1200	AC	208-240	50/60	≤7/5		
DXQ-822 ^[2]	244409082252	Wire	1000	AC	220-240	50/60	≤7/5		
DXQ-648 ^[2]	244409064811	Wire	1000	DC	24	-	≥9		
DXQ-901	244409090102	Wire	1500	DC	35	-	≥9		
DXQ-717 ^{[1][2]}	244409071703	Wire	420	AC	100	50/60	≥18		
DXQ-417 ^{[1][2]}	244409041702	Wire	400	AC	200	50/60	≥18		
DXQ-115 ^[3]	244409011507	Wire	1500	AC	220-240	50/60	≥7/5		
DXQ-1737 ^[3]	244409173700	Wire	1500	AC	208-240	50/60	≥7/5		
DXQ-1738 ^[3]	244409173800	Wire	1500	DC	24	-	≥9		

Note: ^[1] Bi-Stable type.
^[2] Application under potentially explosive conditions approved.
^[3] ATEX explosion-proof certified.

Ordering and Dimensions

DSF Series

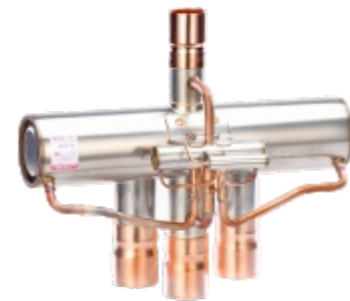
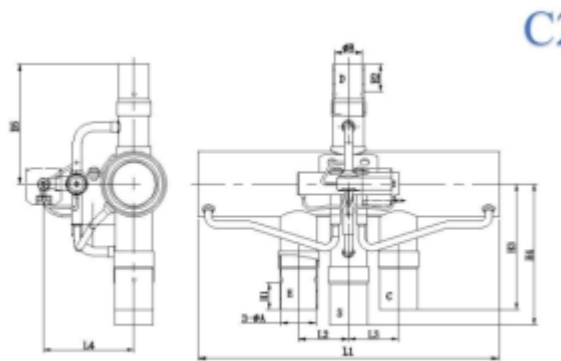
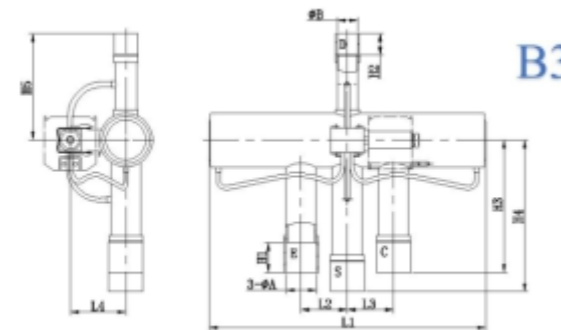
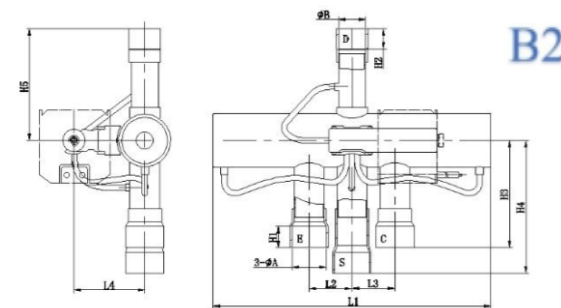
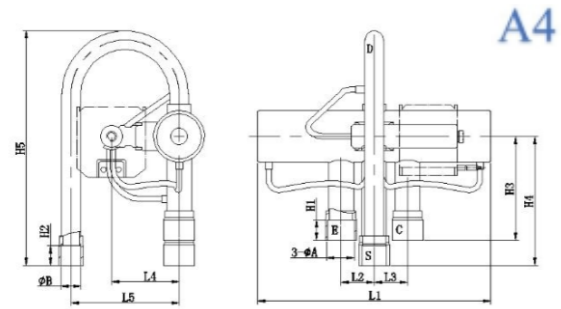


DSF Series

Model	Style	A	B	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	α
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF-4-2203	A1	9.6	8.1	94	12	12	29	42	10	8.5	50	62	104	-
DSF-9-2230	A1	12.8	9.6	117	16	16	32	52	10	10	59	71	119	-
DSF-11B-2230	A3	16.1	12.8	117	25	25	32	16	17	10	62	87	52	15
DSF-11E-2201	A2	16.1	9.6	117	23.5	23.5	32	52	16	10	57	72	119	15
DSF-20-2238	B1	19.2	12.8	186	29	29	36.4	-	19	13	83	95	67	-
DSF-20-2240	B1	22.3	12.8	186	29	29	36.4	-	22	13	83	95	67	-
DSF-34-2241	B1	22.3	19.2	213	33.5	33.5	41.5	-	22	19	86	98.6	82	-
DSF-34-2242	B1	28.73	22.4	213	33.5	33.5	41.5	-	23	22	86	98.6	82	-
DSF-50-2220	B1	28.8	22.3	245	37	37	41.5	-	25.4	22	94	107	93	-

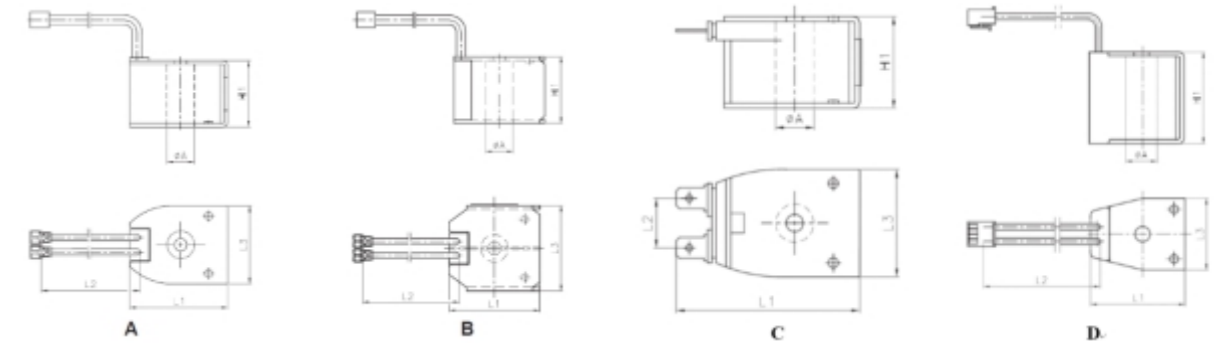
Model	Style	A	B	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	E	F
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF-70-2237	C1	32	25.6	295	46	46	57	90	30	25	115.5	129.5	110.5	196	120
DSF-70-2238	C1	35.1	28.5	295	46	46	57	90	30	25	115.5	129.5	110.5	196	120
DSF-105-2100	C1	38.1	31.8	300	45	45	56	90	30	25	117	130	117	196	120
DSF-140-2100	C1	45	38.1	383	58	58	65	99	40	35	147	167	139.6	230	166
DSF-180-2100	C1	54.2	38.1	383	58	58	65	99	40	35	147	211	139.6	230	166
DSF-210-2100	C1	66.96	50	475	71.5	71.5	65	99	40	33	147	215.6	135.6	262	166

DSF(S) Series



Model	style	A	B	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF(S)-9-2201M	A4	12.8	9.6	112	16	16	33.7	52	9.5	9.5	50	62	112.5
DSF(S)-14H-2201M	B2	16	12.8	130	20	20	34.5	-	9.5	9.5	50	62	52
DSF(S)-20-2001M	B2	19.2	12.8	156	24	24	37	-	17	13	83	95	65
DSF(S)-20-2242C	B3	19.2	12.8	174	29	29	36	-	19	13	83	95	67
DSF(S)-34-2202M	B3	22.3	16	174	29	29	36	-	17	10	83	95	67
DSF(S)-34-2246C	B3	22.3	19.2	207	33.5	33.5	41.5	-	23	19	86	98.6	82
DSF(S)-34-2242C	B3	28.73	22.3	207	33.5	33.5	41.5	-	23	19	86	98.6	83.5
DSF(S)-50-2215C	B3	28.7	22.3	227	37	37	41.5	-	23	22.3	94	107	93
DSF(S)-70-2261C	C2	32.1	25.6	278	46	46	83	-	25	25	117	131	111
DSF(S)-70-2258C	C2	35.1	28.73	278	46	46	83	-	25	25	116	130	110

Coil



Model	Style	A	L1	L2	L3	H1
		[mm]	[mm]	[mm]	[mm]	[mm]
DXQ-242-ND	C	11.7	53.5	15	33	28.5
DXQ-111	A	11.7	40.5	250	33	27.5
DXQ-246	C	11.7	53.5	15	33	28.5
DXQ-957	A	11.7	40.5	4000	33	27.5
DXQ-451	A	11.7	40.5	250	33	27.5
DXQ 280	A	11.7	40.5	500	33	27.5
DXQ-670-EUR	B	11.7	33.5	1200	32.5	27.5
DXQ-822	B	11.7	33.5	1000	32.5	27.5
DXQ-648	A	11.7	40.5	1000	33	27.5
DXQ-901	A	11.7	40.5	1500	33	27.5
DXQ-717	D	11.6	34.5	420	26	33
DXQ-417	D	11.6	34.5	400	26	33
DXQ-115	B	11.7	32.0	1500	33.7	25.7
DXQ-1737	B	11.7	34.0	1500	33.7	25.7
DXQ-1738	A	11.7	40.5	1500	33	27.5

Note: Wire length can be customized as per request.

4-Way Reversing Valve DSF Series for HP & HT

Application

DSF series 4-way reversing valve for HT & HP application is a special variant, which meets requirements of new refrigerants, and is suitable for application of all kinds of heat pump systems under more extreme conditions. It changes the flow path of refrigerants reliably by controlling the pilot valve to switch the mode between cooling and heating.



Features

- Reliably instantaneous changeover under minimum pressure differential
- Wide range of capacity and connection styles
- Application spectrum has extended into systems under more extreme conditions
- Available with special design configuration for systems of heating mode as main function
- Built-in chip energy-saving coil on request

Approvals

Declaration / Certification according to PED, CE.

Technical Data

Applicable Refrigerants: R32, R404A, R407C, R410A, R290, R134a, R454B, R513A, R513B, R1234yf, R454C, R454A, R448A, R449A, R22

Relative Humidity: ≤ 95% RH

Medium Temperature: -30°C~+150°C

Ambient Temperature: -30°C~+55°C

Max. Operating Pressure: 4.9 MPa

Brass DSF Series for HT & HP applications

Model	Part Number	Port	Kv	Connection		OPD		Ps	System Driving Mode
				D	E, S, C	Max.	Min.		
		[mm]	[m³/h]	[in.]	[in.]	[MPa]	[MPa]	[MPa]	
DSF-4-2261	240005059500	8	1.7	5/16	3/8	3.5	0.25	4.9	ON/OFF & Inverter
DSF-9-2261	240007053700	11.1	3.4	3/8	1/2	3.5	0.3	4.9	ON/OFF & Inverter
DSF-11B-2261	240011050600	11.5	4.4	1/2	5/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF-11E-2261	240011056100	11.5	4.4	3/8	5/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF-20-2264	240020098300	17.2	9.5	1/2	3/4	3.5	0.3	4.9	ON/OFF & Inverter
DSF-34-2264	240034074808	20.9	17.5	3/4	7/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF-34-2265	240034075605	20.9	17.5	7/8	1 1/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF-50-2263	240050027206	24	19.9	7/8	1 1/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF-70-2602	240070019305	28.6	28.5	1	1 1/4	3.5	0.3	4.9	ON/OFF & Inverter
DSF-70-2603	240070019716	28.6	28.5	1 1/8	1 3/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF-105-2601	240010005800	34.5	39.1	1 1/4	1 1/2	3.5	0.3	4.9	ON/OFF & Inverter
DSF-140-2601	240014003400	41	58.5	1 1/2	1 3/4	3.5	0.3	4.9	ON/OFF & Inverter
DSF-180-2601	240018001900	46.4	70.4	1 1/2	2 1/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF-210-2601	240021001500	50	80.2	2	2 5/8	3.5	0.3	4.9	ON/OFF & Inverter

Stainless Steel DSF(S) Series for HT & HP applications

Model	Part Number	Port	Kv	Connection		OPD		Ps	System Driving Mode
				D	E, S, C	Max.	Min.		
		[mm]	[m³/h]	[in.]	[in.]	[MPa]	[MPa]	[MPa]	
DSF(S)-9-2261M	240009114301	10.8	3.4	3/8	1/2	3.5	0.3	4.9	ON/OFF & Inverter
DSF(S)-14H-2261M	240015005500	12.8	5.1	1/2	5/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF(S)-20-2261C	240020108412	17.2	9.5	1/2	3/4	3.5	0.3	4.9	ON/OFF & Inverter
DSF(S)-34-2261C	240034074906	20	16.7	3/4	7/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF(S)-34-2262C	240034073503	20	16.7	7/8	1 1/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF(S)-50-2261C	240050027110	24	19.9	7/8	1 1/8	3.5	0.3	4.9	ON/OFF & Inverter
DSF(S)-70-2601C	240070022704	32	35.9	1	1 1/4	3.5	0.3	4.9	ON/OFF & Inverter
DSF(S)-70-2602C	240070021502	32	35.9	1 1/8	1 3/8	3.5	0.3	4.9	ON/OFF & Inverter

Capacity Table

Model	Capacity [kW]																							
	Pressure Drop ΔP [bar]																							
	R134a		R404A		R407C		R410A		R32		R290													
	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2	Cond. 1	Cond. 2												
DSF-4	2.5	3.6	2.4	3.4	2.7	3.9	2.4	3.4	3.1	4.4	2.8	4.0	3.9	5.5	3.5	5.0	5.0	7.1	4.4	6.2	4.0	5.6	3.5	4.9
DSF-9	5.9	8.3	5.5	7.7	6.4	8.9	5.5	7.7	7.1	10.0	6.5	9.2	8.8	12.5	8.0	11.3	11.5	16.2	10.1	14.3	9.1	12.8	8.0	11.3
DSF-11	7.1	9.9	6.6	9.2	7.6	10.6	6.6	9.2	8.6	12.0	7.9	11.1	10.7	15.0	9.6	13.6	13.8	19.5	12.3	17.2	10.9	15.4	9.7	13.6
DSF-20	15.1	21.1	13.9	19.5	16.0	22.5	13.9	19.6	18.2	25.5	16.6	23.5	22.5	33.9	20.5	30.6	29.3	41.3	25.9	36.5	23.2	32.7	20.5	28.9
DSF-34	22.5	31.8	20.9	29.4	23.9	33.7	20.8	29.4	27.2	38.2	25.0	35.1	34.0	47.7	30.5	43.1	43.9	61.8	39.0	54.6	34.7	48.9	30.9	43.2
DSF-50	28.5	40.0	26.5	37.2	30.2	42.6	26.5	37.1	34.4	48.3	31.5	44.4	42.9	60.5	38.7	54.4	55.4	78.2	48.9	69.0	43.9	61.9	38.7	54.6
DSF-70	43.9	61.5	40.5	57.0	46.5	65.6	40.5	57.1	52.8	74.4	48.8	68.2	66.0	93.0	59.3	84.0	85.1	120.3	75.3	106.2	67.4	95.2	59.6	84.1
DSF-105	63.3	88.5	58.5	82.5	67.1	94.7	58.5	82.3	76.3	107.3	70.0	98.7	95.0	134.0	85.8	120.0	123.0	173.5	108.5	153.0	97.4	137.3	85.9	121.1
DSF-140	88.5	124.5	81.6	115.2	93.9	132.7	82.0	115.4	106.2	150.3	98.4	138.0	133.0	188.2	120.4	176.8	172.1	243.0	152.0	214.5	136.2	192.3	120.3	169.8
DSF-180	110.5	155.0	102.8	143.8	117.0	165.3	102.3	144.0	133.0	187.4	122.0	172.1	165.9	234.1	150.0	211.3	215.0	302.9	190.1	267.5	170.1	239.8	150.5	211.7
DSF-210	133.5	187.5	123.5	174	142.0	200.0	123.7	174.0	161.0	226.4	148.0	208.2	200.5	283.6	180.3	255.1	260.1	366.2	228.9	323.5	205.9	289.8	181.2	256.0

Note:
 Condition 1 : T_c=38°C, T_e=5°C, ΔT_{sc}=0K, ΔT_{sh}=5K ;
 Condition 2 : T_c=54.4°C, T_e=7.2°C, ΔT_{sc}=5K, ΔT_{sh}=5K ;

Coil

Model ^[1]	Code No.	Connection Type	Length [mm]	Supply	Nominal Voltage [V]	Frequency [Hz]	Nominal Power [W]	Insulation Class	IP Grade
DXQ-242-ND ^[2]	244409024217	Spade	-	AC	24	50/60	≤7/5		
DXQ-111 ^[2]	244409011103	Wire	250	AC	100	50/60	≤7/5		
DXQ-246 ^[2]	244409024603	Spade	-	AC	115	50/60	≤7/5		
DXQ-957 ^[2]	244409095701	Wire	4000	AC	24	50/60	≤7/5		
DXQ-451 ^[2]	244409045102	Wire	250	AC	100	50/60	≤7/5		
DXQ-280 ^[2]	244409028001	Wire	500	AC	200	50/60	≤7/5		
DXQ-670-EUR ^[2]	244409067002	Wire	1200	AC	208-240	50/60	≤7/5		
DXQ-822 ^[2]	244409082252	Wire	1000	AC	220-240	50/60	≤7/5		
DXQ-648 ^[2]	244409064811	Wire	1000	DC	24	-	≥9	B	IP54
DXQ-901	244409090102	Wire	1500	DC	35	-	≥9		
DXQ-717 ^{[1][2]}	244409071703	Wire	420	AC	100	50/60	≥18		
DXQ-417 ^{[1][2]}	244409041702	Wire	400	AC	200	50/60	≥18		
DXQ-115 ^[3]	244409011507	Wire	1500	AC	220-240	50/60	≤7/5		
DXQ-1737 ^[3]	244409173700	Wire	1500	AC	208-240	50/60	≤7/5		
DXQ-1738 ^[3]	244409173800	Wire	1500	DC	24	-	≥9		

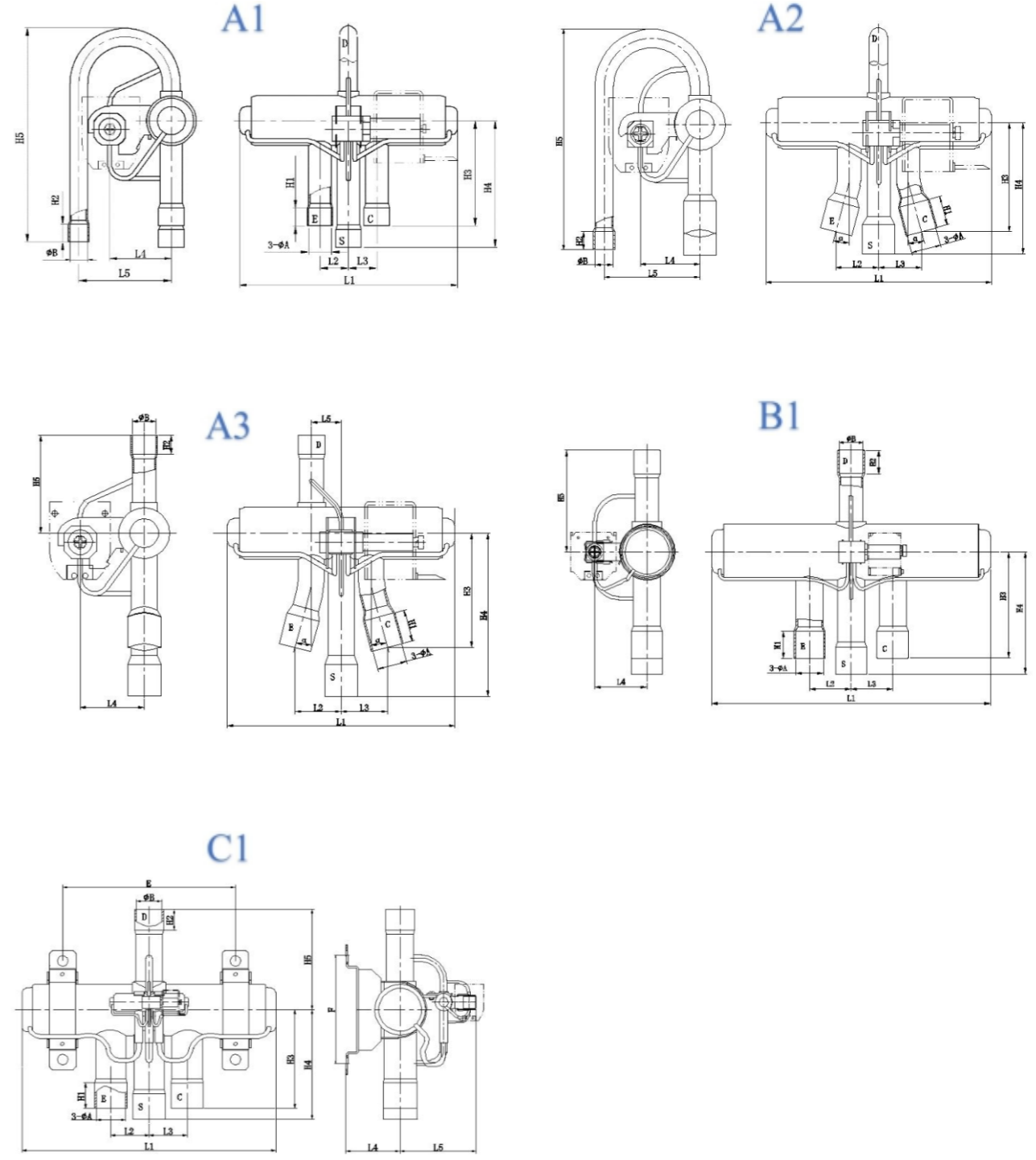
Note: ^[1] Bi-Stable type.
^[2] Application under potentially explosive conditions approved.
^[3] ATEX explosion-proof certified.

Capacity Table

Model		Capacity [kW]																										
		Pressure Drop ΔP [bar]																										
		R134a				R404A				R407C				R410A				R32				R290						
Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2		
DSF(S)-9M	5.9	8.3	0.1	0.2	5.5	7.7	0.1	0.2	5.4	7.6	0.1	0.2	7.1	10.0	6.5	9.2	8.4	11.9	7.6	10.7	11.5	16.2	10.1	14.3	9.1	12.8	8.0	11.3
DSF(S)-14M	9.1	12.9	8.5	12.0	8.8	12.5	8.4	11.8	12.2	17.3	11.0	15.5	13.8	19.4	12.4	17.6	18.2	25.8	17.1	24.2	18.2	25.8	17.1	24.2	13.4	19.0	12.3	17.5
DSF(S)-20	15.1	23.7	15.2	21.2	14.9	21.1	14.1	20.0	24.2	34.0	21.5	30.2	28.4	40.0	25.6	36.3	33.8	47.7	30.7	43.2	33.8	47.7	30.7	43.2	27.9	38.9	24.9	34.7
DSF(S)-34	22.5	31.8	20.9	29.4	21.7	30.7	20.6	29.1	35.3	49.3	31.4	43.9	32.3	45.3	29.0	41.0	43.9	61.8	39.0	54.6	43.9	61.8	39.0	54.6	34.7	48.9	30.9	43.2
DSF(S)-50	32.3	44.5	26.5	37.2	34.4	44.5	26.4	37.3	45.5	64.6	40.5	57.4	58.4	81.5	36.8	51.7	55.4	78.2	48.9	69.0	55.4	78.2	48.9	69.0	43.9	61.9	38.7	54.6
DSF(S)-70	58.1	80.3	52.1	71.9	43.8	63.6	41.4	58.8	82.3	115.7	73.1	103.0	78.4	105.3	70.3	95.4	105.0	148.8	92.6	131.3	105.0	148.8	92.6	131.3	83.8	117.5	76.6	107.3

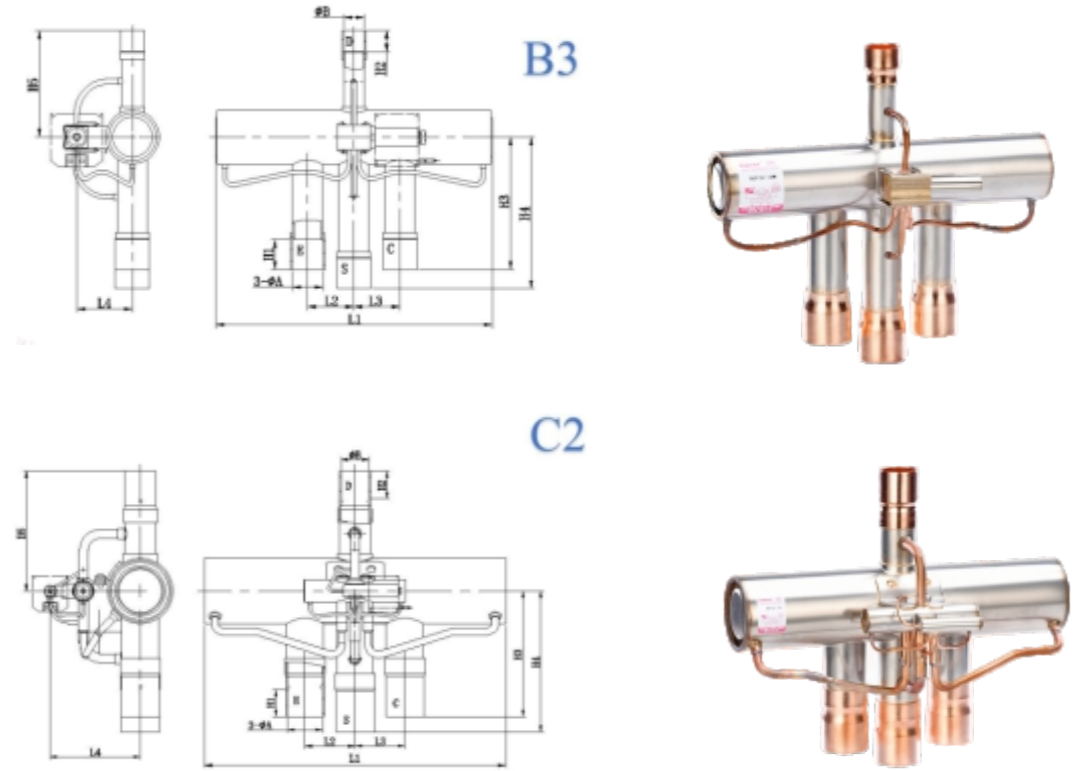
Note: 1) Cond.1: TC=38°C, TE=5°C, $\Delta T_{sh}=5K$, $\Delta T_{sc}=0K$;
 2) Cond.2: TC=54.4°C, TE=7.2°C, $\Delta T_{sh}=5K$, $\Delta T_{sc}=5K$

Ordering and Dimensions DSF Serie

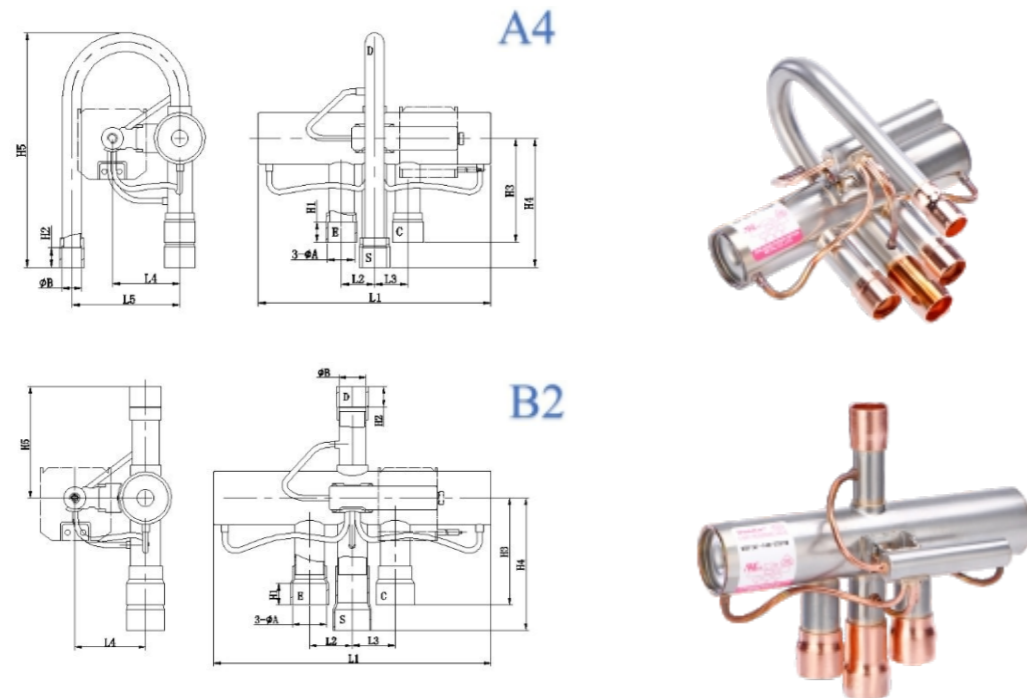


DSF Series for HT & HP applications

Model	Type	A	B	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	α	E	F
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]	[mm]
DSF-4-2261	A1	9.6	8.1	94	12	12	29	42	10	8.5	50	62	104.5	-	-	-
DSF-9-2261	A1	12.8	9.6	117	16	16	32	52	10	10	59	71	119	-	-	-
DSF-11B-2261	A3	16.1	12.8	117	25	25	32	16	17	10	62	87	52	15	-	-
DSF-11E-2261	A2	16.1	9.6	117	23.5	23.5	32	52	16	10	57	72	119	15	-	-
DSF-20-2264	B1	19.2	12.8	186	29	29	36	-	19	13	83	95	67	-	-	-
DSF-34-2264	B1	22.3	19.2	213	33.5	33.5	41.5	-	22	19	86	98.6	82	-	-	-
DSF-34-2265	B1	28.73	22.4	213	33.5	33.5	41.5	-	23	22	86	98.6	82	-	-	-
DSF-50-2263	B1	28.8	22.3	245	37	37	41.5	-	25.4	22	94	107	93	-	-	-
DSF-70-2602	C1	32	25.6	295	46	46	57	90	30	25	115.5	129.5	110.5	-	196	120
DSF-70-2603	C1	35.1	28.5	295	46	46	57	90	30	25	115.5	129.5	110.5	-	196	120
DSF-105-2601	C1	38.1	31.8	300	45	45	56	90	30	25	117	130	116.5	-	196	120
DSF-140-2601	C1	45	38.1	383	58	58	65	99	40	35	147	167	139.6	-	230	166
DSF-180-2601	C1	54.2	38.1	383	58	58	65	99	40	35	147	197	139.6	-	230	166
DSF-210-2601	C1	66.96	50	475	71.5	71.5	65	99	40	33	147	215.6	135.6	-	262	166



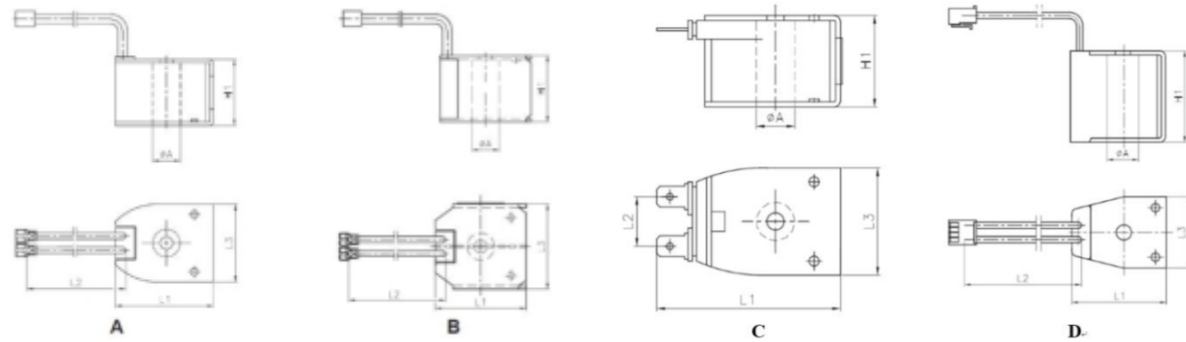
DSF(S) Series



DSF(S) Series for HT & HP applications

Model	Type	A	B	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF(S)-9-2261M	A4	12.8	9.6	112	16	16	33.7	52	9.5	9.5	50	62	112.5
DSF(S)-14H-2261M	B2	16	12.8	130	20	20	34.5	-	9.5	9.5	50	62	52
DSF(S)-20-2261C	B3	19.2	12.8	174	29	29	36	-	19	13	83	95	67
DSF(S)-34-2261C	B3	22.3	19.2	207	33.5	33.5	41.5	-	23	19	86	98.6	82
DSF(S)-34-2262C	B3	28.73	22.3	207	33.5	33.5	41.5	-	23	19	86	98.6	83.5
DSF(S)-50-2261C	B3	28.7	22.3	227	37	37	41.5	-	23	22.3	94	107	93
DSF(S)-70-2601C	C2	32.1	25.6	278	46	46	83	-	25	25	117	131	111
DSF(S)-70-2602C	C2	35.1	28.73	278	46	46	83	-	25	25	116	130	110

Coil



Model	Style	A	L1	L2	L3	H1
		[mm]	[mm]	[mm]	[mm]	[mm]
DXQ-242-ND	C	11.7	53.5	15	33	28.5
DXQ-111	A	11.7	40.5	250	33	27.5
DXQ-246	C	11.7	53.5	15	33	28.5
DXQ-957	A	11.7	40.5	4000	33	27.5
DXQ-451	A	11.7	40.5	250	33	27.5
DXQ 280	A	11.7	40.5	500	33	27.5
DXQ-670-EUR	B	11.7	33.5	1200	32.5	27.5
DXQ-822	B	11.7	33.5	1000	32.5	27.5
DXQ-648	A	11.7	40.5	1000	33	27.5
DXQ-901	A	11.7	40.5	1500	33	27.5
DXQ-717	D	11.6	34.5	420	26	33
DXQ-417	D	11.6	34.5	400	26	33
DXQ-115	B	11.7	32.0	1500	33.7	25.7
DXQ-1737	B	11.7	34.0	1500	33.7	25.7
DXQ-1738	A	11.7	40.5	1500	33	27.5

Note: Wire length can be customized as per request.

4-Way Reversing Valve DRVB Series

Application

DRVB series large capacity cross-type four-way electromagnetic reversing valves are applicable for large-scale heat pump systems and ice machines and other equipment to realize the switching between cooling and heating modes by changing the flow direction of refrigerants, which is realized by the on/off control of the external pilot valve solenoid coil, leading the flow direction of the external high pressure gas in the valve body. As a result, the pressure difference between the both ends of piston is changed so that the piston moves inside the valve body, which changes the location fitting between the piston flow passage and the four connecting pipes outside the valve body.



Features

- X-cross design ensures big flow area and low pressure drop;
- Stability and reliability ensured by adopting a small 4-way valve as pilot valve;
- Built-in self-lubricating bush;
- Special material of seal ring ensures the valve's applicability to all common refrigerants;
- Copper pipeline connection needed for installation

Approvals

Declaration / Certification according to PED.

Technical Data

Applicable Refrigerants: R32, R404A, R407C, R410A, R290, R134a, R454B, R513A, R513B, R1234yf, R1234ze, R454C, R455A, R454A, R452B, R448, R22

Max. Operating Pressure: 4.9 MPa

Max. Operating Pressure Differential: 3.1 MPa

Min. Operating Pressure Differential: 0.3~0.4 MPa

Medium Temperature: -30 °C~+130 °C

Ambient Temperature: -20 °C ~ +55 °C

Relative Humidity: ≤ 95% RH

Allowable Voltage Fluctuation: 85%~110%

Standard Coil: AC 110, AC 220V, AC 24V

General performance Data

Model	Area of High Pressure Side	Area of Low Pressure Side	Inner Leakage Rate ⁽¹⁾	R22	R134a	R32	R407C	R290	R410A	R454A	R452B	R448A
	[mm ²]	[mm ²]	[≤ L/min]	[kW]								
DRVB150	2142	2300	20	196	149	275	188	199	225	200	240	198
DRVB200	2721	2909	30	264	200	370	253	268	303	270	323	266
DRVB300	3608	4264	45	366	278	513	351	372	420	374	448	369
DRVB350	5200	5867	60	476	362	667	457	484	547	487	583	481
DRVB400	5847	7272	90	527	405	749	513	544	614	546	654	540
DRVB600	7410	10200	120	762	580	1068	730	775	875	779	932	769
DRVB800	10431	13593	200	1074	818	1384	1033	1092	1234	1098	1314	1084

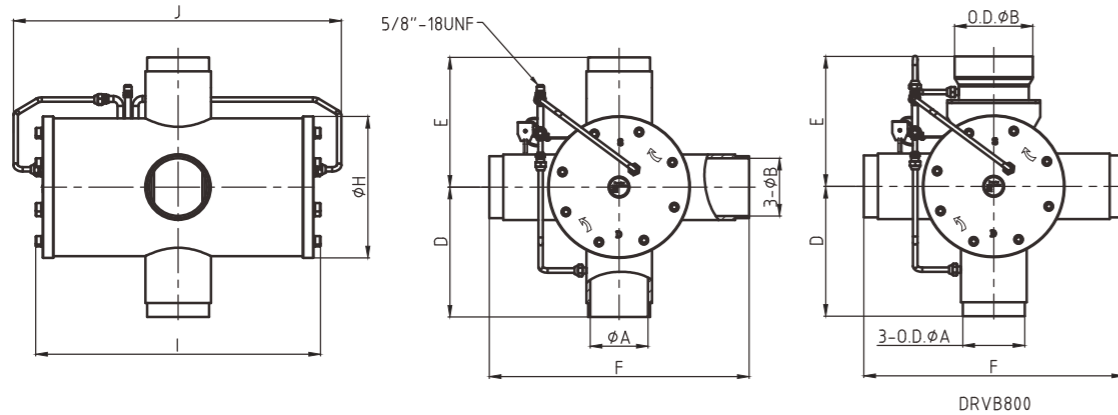
Nominal capacity is based on:

1. Evaporating temperature $T_e=3^{\circ}\text{C}$;
2. Condensing temperature $T_c=48^{\circ}\text{C}$;
3. Superheating degree $\Delta T_{sh}=5\text{K}$
4. Low Pressure Drop $\Delta p=0.015\text{MPa}$

⁽¹⁾ Inner Leakage Rate: compressed air or nitrogen with pressure difference of 1.0 MPa.

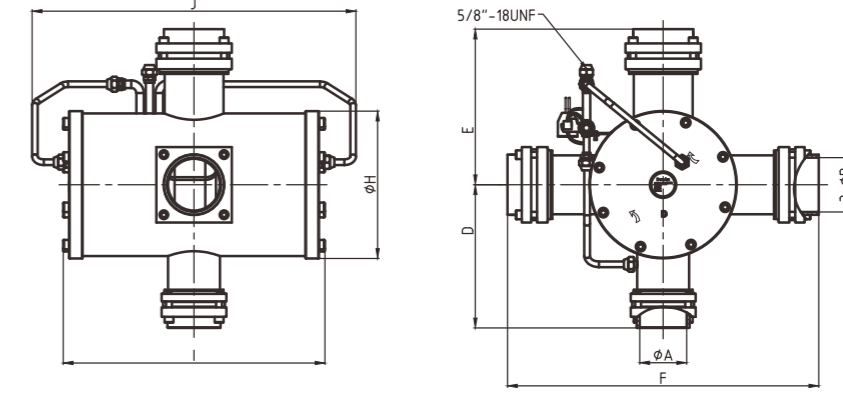
Ordering and Dimensions

Welded connection



Model	Code No.	ΦA [mm]	ΦB [mm]	D [mm]	E [mm]	F [mm]	ΦH [mm]	I [mm]	J [mm]	Weight [kg] (N.W.)
DRVB150	340093000143	54	67	133	138	276	140	302	399	24
DRVB200	340092000143	54	67	152	152	304	170	325	417	37
DRVB300	340091000143	67	79	168	180	360	184	386	488	50
DRVB350	340090000143	79	92	195	210	420	224	439	540	80
DRVB400	340088000101	92	105	223	223	446	224	473	574	88
DRVB600	340089002349	105	134	235	235	470	250	546	646	122
DRVB800	340087002601	133	168	279	279	558	278	612	695	155

Flange connection



Model	Code No.	ΦA [mm]	ΦB [mm]	D [mm]	E [mm]	F [mm]	ΦH [mm]	I [mm]	J [mm]	Weight [kg]
DRVB150F	340093001548	54	67	187	201	402	140	302	399	28
DRVB200F	340092000948	54	67	195	195	390	170	325	417	43
DRVB300F	340091000948	67	79	211	228	456	184	386	488	58
DRVB350F	340090000148	79	92	243	264	528	224	439	540	93
DRVB600F	340089002550	108	133	306	306	612	250	546	646	137

Electronic Expansion Valve

DPF Series



Application

DPF Series electronic expansion valve is mainly composed of step motor and valve needle with magnetic rotor, driven by coil which receives pulse signals from controller. The transmission screw converts the rotary motion of the rotor component into the axial linear motion of the valve needle to regulate the flow area of the valve port, adjusting the refrigerant flow rate.

Features

- Low noise and high control precision;
- Bi-directional flow;
- Low power consumption and wide flow regulation range;
- Superior self-lubricating thread transmission;
- Application spectrum has extended into systems under potentially explosive conditions;
- Plastic packaging anti-corrosion coil;
- Advanced and highly reliable welding;
- Good actuating performance;
- Lightweight and compact construction.

Approvals

Declaration according to PED, LVD, IECEx, ATEX and UL

Technical Data

Applicable Refrigerant: R134a, R407C, R404A, R410A, R290, R1234yf, R1234ze, R454B, R513A and R32

Relative Humidity: ≤ 95%

Medium Temperature: -30°C~+70°C (energized rate below 50%)

Ambient Temperature: -30°C~+60°C (energized rate below 50%)

Max. Operating Pressure: 4.5 MPa

Medium Flow Direction: Bi-flow

Life Cycle: ≥ 100,000

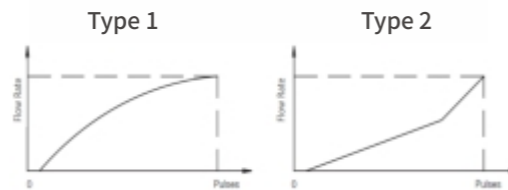
DPF Series Selection Table

Model	Code No.	Style	Orifice Φ [mm]	Air Flow [0.1MPa]		Flow Type	Internal Leakage [mL/min]	Reverse OPD [MPa]	MOPD [MPa]	Max. Operating Pressure [MPa]
				250 Pulses	500 Pulses					
				[L/min]	[L/min]					
DPF(B)1.0-101	310011101700	A	1.0	9	≥12	1	≤600	≥2.2	3.5	4.5
DPF(B)1.0-103	310011100900	A		6		2				
DPF(B)1.0-105	310011100400	B		9		1				
DPF(B)1.0-106	310011101000	B	6	2						
DPF(B)1.3-101	310012003000	A	1.3	16	≥21	1				
DPF(B)1.3-103	310012009600	A		8.5		2				
DPF(B)1.3-105	310012002900	B		16		1				
DPF(B)1.3-106	310012005700	B	8.5	2						
DPF(B)1.65-101	310001127600	A	1.65	25	≥34	1				
DPF(B)1.65-103	310001129900	A		11		2				
DPF(B)1.65-105	310001116800	B		25		1				
DPF(B)1.65-106	310001120100	B	11	2						
DPF(B)1.8-101	310006114700	A	1.8	31	≥45	1				
DPF(B)1.8-103	310006114800	A		13		2				
DPF(B)1.8-105	310006106400	B		31		1				
DPF(B)1.8-106	310006108600	B	13	2						
DPF(B)2.0-101	310007137200	A	2.0	40	≥50	1				
DPF(B)2.0-103	310007137300	A		16		2				
DPF(B)2.0-105	310007132400	B		40		1				
DPF(B)2.0-106	310007134100	B	16	2						
DPF(B)2.2-101	310002001000	A	2.2	45	≥60	1				
DPF(B)2.2-103	310002005100	A		19		2				
DPF(B)2.2-105	310002003600	B		45		1				
DPF(B)2.2-106	310002001700	B	19	2						
DPF(B)2.4-101	310003207500	A	2.4	55	≥74	1				
DPF(B)2.4-103	310003207600	A		23		2				
DPF(B)2.4-105	310003201900	B		55		1				
DPF(B)2.4-106	310003203500	B	23	2						
DPF(B)2.6-101	310016003100	A	2.6	60	≥82	1				
DPF(B)2.6-103	310016003200	A		28		2				
DPF(B)2.6-105	310016003300	B		60		1				
DPF(B)2.6-106	310016003400	B	28	2						
DPF(B)2.8-101	310008002900	A	2.8	67	≥95	1				
DPF(B)2.8-103	310008003000	A		29		2				
DPF(B)2.8-105	310008000800	B		67		1				
DPF(B)2.8-106	310008003100	B	29	2						
DPF(B)3.0-101	310004003600	A	3.0	79	≥105	1				
DPF(B)3.0-103	310004003700	A		31		2				
DPF(B)3.0-105	310004003800	B		79		1				
DPF(B)3.0-106	310004003900	B	31	2						
DPF(B)3.2-101	310009004300	A	3.2	91	≥115	1				
DPF(B)3.2-103	310009004600	A		33		2				
DPF(B)3.2-105	310009000800	B		91		1				
DPF(B)3.2-106	310009001800	B	33	2						
DPF(B)3.5C-P001	310026000300	B	3.5	95	≥113	1	≤1500	≥2.2		
DPF(B)4.0C-P001	310017004000	B	4.0	135	≥213	1				
DPF(B)4.5C-P001	310018001900	B	4.5	180	≥268	1				
DPF(B)5.5C-P001	310020001500	B	5.5	245	≥397	1				
DPF(B)6.5C-P001	310022001200	B	6.5	260	≥483	1				
DPF(B)8.0C-P001	310028000104	B	8.0	/	≥700	1				
DPF(B)9.0C-P001	310029000100	B	9.0	/	≥900	1				
DPF(B)10C-P001	310030000102	B	10.0	/	≥1100	1				
DPF(B)12C-P001	310032000200	B	12.0	/	≥1300	1				
DPF(B)13C-P001	310033000305	B	13.0	/	≥1600	1				

Coil Parameters

Item	Parameter
Full Stroke	500 pulses
Opening Pulse	30±20
Nominal Voltage	DC 12V±10%, rectangular wave
Actuating Mode	4-phase 8-step permanent magnet stepper motor
Excitation Mode	1 ~ 2 phase excitation, monopole actuation
Excitation Rate	30 ~ 90 PPS: DPF(B) 1.0 - 2.4 30 ~ 40 PPS: DPF(B) 2.6 - 13
Insulation Class	E
Resistance	46±3.7Ω (DPF(B)1.0-13) (20°C)
Current	260mA/Phase(DPF(B)1.0-13) (20°C)
Protection Class	IP67 (DPF(B)1.0-13)

Flow Characteristics



Nominal Capacity

Model	Orifice Φ [mm]	Nominal Capacity									
		R410A [kW]	R134a [kW]	R290 [kW]	R407C [kW]	R404A [kW]	R32 [kW]	R454B [kW]	R513A [kW]	R1234yf [kW]	R1234ze [kW]
DPF(B)1.0	1.0	3.4	2.3	3.1	2.3	2.1	5.1	4.2	1.9	1.7	1.6
DPF(B)1.3	1.3	6.7	4.5	6.0	4.5	4.0	9.9	8.3	3.8	3.3	3.1
DPF(B)1.65	1.65	12.0	8.1	10.7	8.0	7.2	17.6	15.0	6.8	5.9	5.6
DPF(B)1.8	1.8	14.2	9.6	12.7	9.5	8.6	20.9	17.8	8.1	6.9	6.6
DPF(B)2.0	2.0	17.4	11.7	15.5	11.6	10.5	25.6	21.7	9.9	8.5	8.1
DPF(B)2.2	2.2	19.0	12.8	16.9	12.6	11.4	27.9	23.7	10.8	9.3	8.9
DPF(B)2.4	2.4	22.4	15.0	19.9	14.9	13.5	32.9	28.0	12.7	11.0	10.5
DPF(B)2.6	2.6	28.6	19.2	25.4	19.0	17.2	42.0	35.8	16.3	14.0	13.4
DPF(B)2.8	2.8	30.1	20.3	26.9	20.1	18.2	44.3	37.7	17.1	14.7	14.1
DPF(B)3.0	3.0	37.4	25.1	33.3	24.9	22.5	54.9	46.7	21.2	18.3	17.5
DPF(B)3.2	3.2	40.2	27.0	35.8	26.8	24.2	59.1	50.2	22.8	19.6	18.8
DPF(B)3.5	3.5	48.7	32.8	43.4	32.5	29.4	71.6	60.9	27.7	23.8	22.8
DPF(B)4.0	4.0	77.8	52.3	69.3	51.8	46.9	114.3	93.8	42.7	36.7	35.1
DPF(B)4.5	4.5	90.8	61.1	81.0	60.5	54.8	133.5	113.5	51.6	44.4	42.4
DPF(B)5.5	5.5	106.3	71.5	94.7	70.8	64.1	156.3	132.9	60.4	51.9	49.7
DPF(B)6.5	6.5	126.4	85.0	112.6	84.2	76.2	185.7	158.1	71.9	61.8	59.1
DPF(B)8.0	8.0	189.8	130.9	172.7	173.8	115.3	287.2	237.0	107.8	92.7	88.6
DPF(B)9.0	9.0	240.2	165.6	218.6	220.0	145.9	363.5	300.0	136.4	117.3	112.1
DPF(B)10	10.0	296.5	204.5	269.8	271.6	180.1	448.7	370.3	168.4	144.8	138.4
DPF(B)12	12.0	426.9	294.4	388.6	391.1	259.4	646.2	533.3	242.5	208.5	199.4
DPF(B)13	13.0	501.1	345.5	456.0	459.0	304.4	758.3	625.8	284.6	244.7	234.0

The nominal capacity is based on:

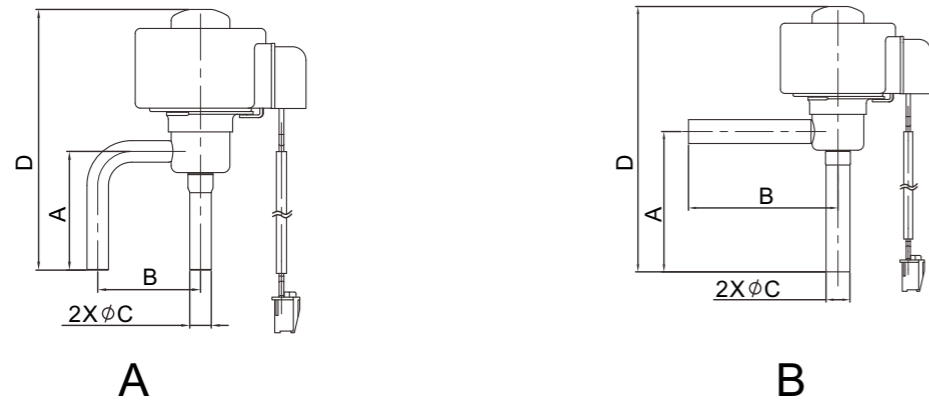
1. Valve fully open;
2. Condensing Temperature $T_c=45^\circ\text{C}$;
3. Evaporating Temperature $T_e=7^\circ\text{C}$;
4. Superheat Degree $\Delta T_{sh}=5\text{K}$;
5. Subcooling Degree $\Delta T_{sc}=5\text{K}$

Model	Orifice Φ [mm]	Nominal Capacity									
		R410A [kW]	R134a [kW]	R290 [kW]	R407C [kW]	R404A [kW]	R32 [kW]	R454B [kW]	R513A [kW]	R1234yf [kW]	R1234ze [kW]
DPF(B)1.0	1.0	3.5	2.4	3.2	2.3	2.1	5.3	4.4	1.9	1.7	1.6
DPF(B)1.3	1.3	6.9	4.7	6.2	4.4	4.1	10.3	8.6	3.8	3.3	3.2
DPF(B)1.65	1.65	12.4	8.3	11	7.9	7.3	18.4	15.6	6.9	5.9	5.7
DPF(B)1.8	1.8	14.6	9.9	13	9.4	8.6	21.8	18.4	8.2	7.0	6.8
DPF(B)2.0	2.0	18	12.1	16	11.5	10.6	26.8	22.5	10.0	8.5	8.3
DPF(B)2.2	2.2	19.6	13.2	17.4	12.5	11.5	29.2	24.6	10.9	9.3	9.0
DPF(B)2.4	2.4	23.1	15.5	20.5	14.7	13.6	34.4	29.1	12.9	11.0	10.7
DPF(B)2.6	2.6	29.5	19.8	26.2	18.8	17.4	43.9	37.1	16.5	14.1	13.6
DPF(B)2.8	2.8	31.1	20.9	27.7	19.9	18.4	46.4	39.1	17.4	14.8	14.3
DPF(B)3.0	3.0	38.5	25.9	34.3	24.6	22.8	57.5	48.5	21.5	18.4	17.8
DPF(B)3.2	3.2	41.5	27.9	36.9	26.5	24.5	61.8	52.1	23.1	19.8	19.1
DPF(B)3.5	3.5	50.3	33.8	44.7	33.8	29.7	75.0	63.2	28.1	24.0	23.2
DPF(B)4.0	4.0	80.2	54	71.4	54	47.4	119.7	97.4	43.3	36.9	35.7
DPF(B)4.5	4.5	93.7	63	83.4	63	55.4	139.8	117.8	52.3	44.7	43.2
DPF(B)5.5	5.5	109.7	73.8	97.6	73.8	64.8	163.6	137.9	61.3	52.3	50.5
DPF(B)6.5	6.5	130.4	87.7	116	87.7	77.0	194.4	164.1	72.9	62.2	60.1
DPF(B)8.0	8.0	194.1	134.3	176.9	176.5	111.4	299.4	246.0	109.3	93.3	90.2
DPF(B)9.0	9.0	245.7	170.0	223.9	223.4	141.0	378.9	311.3	138.3	118.1	114.1
DPF(B)10	10.0	303.3	209.8	276.4	275.8	174.1	467.7	384.3	170.7	145.8	140.9
DPF(B)12	12.0	436.7	302.2	398.0	397.2	250.7	673.5	553.4	245.9	209.9	202.9
DPF(B)13	13.0	512.5	354.6	467.1	466.2	294.2	790.5	649.5	288.5	246.3	238.1

The nominal capacity is based on:

1. Valve fully open;
2. Condensing Temperature $T_c=48^\circ\text{C}$;
3. Evaporating Temperature $T_e=3^\circ\text{C}$;
4. Superheat Degree $\Delta T_{sh}=5\text{K}$;
5. Subcooling Degree $\Delta T_{sc}=5\text{K}$

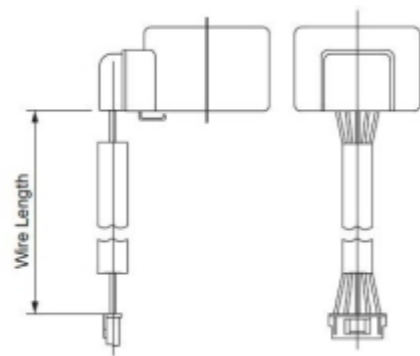
Style



Dimensions

Model	Style	A	B	C	D
		[mm]	[mm]	[in.]	[mm]
DPF(B) 1.0 ~ 2.4	A	35	30	1/4	77
	B	38	38		80
DPF(B) 2.6 ~ 3.2	A	35	36	5/16	77
	B	47	50		89
DPF(B)3.5~6.5	B	45	45	1/2	92
DPF(B)8.0~13	B	66	66	5/8	132

Coils



Coil Model	Code NO	Valve Model	Wire Length ^[1]	Wire Number	Connector ^[1]
DPFX07-037 ^[2]	310701138900	DPF(B)1.0-6.5	2000	5	XHP-5
DPFX07-118 ^[2]	310701133500	DPF(B)1.0-6.5	2000	6	XHP-6
DPFX09-006 ^[2]	310740007301	DPF(B)8.0-13	4000	6	XHP-6

Note:

^[1] Connector and cable length can be customized

^[2] Application under potentially explosive conditions IECEx approved.

Thermostatic Expansion Valve TCE/TCBE Series

Application

TCE/TCBE thermostatic expansion valves regulate refrigerant flow based on the superheat at the evaporator outlet. The sensor bulb is positioned at the evaporator outlet. These valves are suitable for high-capacity systems, including bus and central air conditioning systems, heat pumps, and water chillers.



Features

- Nominal capacity (R410A): 3.5 ~ 23TR / 12 ~ 79kW
- Straightway design
- Bleed function
- Bi-Flow design
- Adjustable superheat
- Laser welding of power element, long lifetime of diaphragm
- Available with MOP

Approvals

UL, CE

Technical Data

Applicable refrigerants: R134a, R404A, R507, R407C, R410A, R290, and R32 etc

Max. bulb temperature: 100°C

Static state superheat adjustment range: 0K ~ 8K

Max. valve housing temperature: 110°C

Static state superheat presetting: 4K

Medium temperature: -40°C ~ +70°C

Equalization Connection: 1/4 "

Ambient temperature: -30°C ~ +55°C

Capillary Tube Length: 1500mm

Max. operating pressure: 4.6 MPa

Max. test pressure: 5.1 MPa

Relative humidity: below 95%

Identification

Example

TCEX3-003 = Type (X=R22)
3 TR = Nominal Capacity in Tons
10 kW = Nominal Capacity in kW
R22/R407C = Refrigerant
-25/+10°C = Evaporating Temperature Range
MOP 15°C = Max. Evaporating Pressure
BP15 = Bleed 15%
TC4400800312 = Ordering Code Number
PS 46bar/MWP 667psig = Max. Working Pressure
BB2800001 = Date Marking



Refrigerant

Z: R407C S: R404A/R507 X: R22/R407C B: R32
 N: R134a L: R410A P: R290

MOP Options

Refrigerant	Range N -40°C ~ +10°C	Range K -25°C ~ +10°C MOP 15°C
R404A/R507	(Without MOP)	8.3 bar
R407C	(Without MOP)	6.6 bar
R134a	(Without MOP)	3.9 bar
R410A	(Without MOP)	11.4 bar
R22	(Without MOP)	6.9 bar
R32	(Without MOP)	11.8 bar
R290	(Without MOP)	6.3 bar

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

Nominal Capacity

Model	Orifice No.	R134a		R404A/R507		R407C		R410A		R32		R290		R22	
		kW	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW	TR
TCE	3.5	6	1.5	7	2	9	2.5	12	3.5	18	5	10	3	10	3
	4.5	8	2.5	9	2.5	13	3.5	16	4.5	24	7	14	4	14	4
	6.5	12	3.5	14	4	19	5	24	6.5	35	10	19	5	20	6
	9	17	4.5	18	5	25	7	32	9	47	13	25	7	27	7.5
	11	20	5.5	21	6	30	8.5	37	11	54	15	32	9	32	9
	13	24	7	26	7.5	36	10	45	13	68	19	36	10	38	11
TCBE	15	29	8	31	9	42	12	54	15	81	23	44	12	43	12
	19	37	10	39	11	53	15	68	19	102	29	54	15	54	15
	23	44	12	45	13	62	18	79	23	120	34	63	18	63	18

Nominal capacity is based on:
 1. Evaporating temperature $T_e=4.4^\circ\text{C}$;
 2. Condensing temperature $T_c=38^\circ\text{C}$;
 3. Refrigerant temperature of valve head $T_r=37^\circ\text{C}$;
 4. Static superheat $SS=4\text{K}$;
 5. Opening superheat $OS=4\text{K}$.

Ordering

R134a: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCEN	3.5	3/8 × 5/8	1/4	TC4400800200
	3.5	1/2 × 5/8	1/4	TC4400800201
	4.5	1/2 × 7/8	1/4	TC4400800202
	6.5	1/2 × 5/8	1/4	TC4400800203
	6.5	1/2 × 7/8	1/4	TC4400800204
	6.5	5/8 × 7/8	1/4	TC4400800205
	9	5/8 × 7/8	1/4	TC4400800206
	11	5/8 × 7/8	1/4	TC4400800347
	13	5/8 × 7/8	1/4	TC4400800207
TCBEN	15	5/8 × 7/8	1/4	TC4400800210
	15	5/8 × 1-1/8	1/4	TC4400800211
	19	5/8 × 1-1/8	1/4	TC4400800212
	19	7/8 × 1-1/8	1/4	TC4400800213
	23	7/8 × 1-1/8	1/4	TC4400800214
	23	7/8 × 1-3/8	1/4	TC4400800215

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R134a: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCEN	3.5	3/8 x 5/8	1/4	TC4400800216
	3.5	1/2 x 5/8	1/4	TC4400800217
	4.5	1/2 x 7/8	1/4	TC4400800218
	6.5	1/2 x 5/8	1/4	TC4400800219
	6.5	1/2 x 7/8	1/4	TC4400800220
	6.5	5/8 x 7/8	1/4	TC4400800221
	9	5/8 x 7/8	1/4	TC4400800222
	11	5/8 x 7/8	1/4	TC4400800348
	13	5/8 x 7/8	1/4	TC4400800223
	TCBEN	15	5/8 x 7/8	1/4
15		5/8 x 1-1/8	1/4	TC4400800227
19		5/8 x 1-1/8	1/4	TC4400800228
19		7/8 x 1-1/8	1/4	TC4400800229
23		7/8 x 1-1/8	1/4	TC4400800230
23		7/8 x 1-3/8	1/4	TC4400800231

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R404A/R507: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCES	3.5	3/8 x 5/8	1/4	TC4400800248
	3.5	1/2 x 5/8	1/4	TC4400800249
	4.5	1/2 x 7/8	1/4	TC4400800250
	6.5	1/2 x 7/8	1/4	TC4400800251
	6.5	1/2 x 5/8	1/4	TC4400800252
	6.5	5/8 x 7/8	1/4	TC4400800253
	9	5/8 x 7/8	1/4	TC4400800255
	11	5/8 x 7/8	1/4	TC4400800350
	13	5/8 x 7/8	1/4	TC4400800256
	TCBES	15	5/8 x 7/8	1/4
15		5/8 x 1-1/8	1/4	TC4400800260
19		5/8 x 1-1/8	1/4	TC4400800261
19		7/8 x 1-1/8	1/4	TC4400800262
23		7/8 x 1-1/8	1/4	TC4400800263
23		7/8 x 1-3/8	1/4	TC4400800387

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R404A/R507: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCES	3.5	3/8 x 5/8	1/4	TC4400800232
	3.5	1/2 x 5/8	1/4	TC4400800233
	4.5	1/2 x 7/8	1/4	TC4400800234
	6.5	1/2 x 7/8	1/4	TC4400800235
	6.5	1/2 x 5/8	1/4	TC4400800236
	6.5	5/8 x 7/8	1/4	TC4400800237
	9	5/8 x 7/8	1/4	TC4400800239
	11	5/8 x 7/8	1/4	TC4400800349
	13	5/8 x 7/8	1/4	TC4400800240
	TCBES	15	5/8 x 7/8	1/4
15		5/8 x 1-1/8	1/4	TC4400800244
19		5/8 x 1-1/8	1/4	TC4400800245
19		7/8 x 1-1/8	1/4	TC4400800246
23		7/8 x 1-1/8	1/4	TC4400800247
23		7/8 x 1-3/8	1/4	TC4400800386

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R407C: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCEZ	3.5	3/8 x 5/8	1/4	TC4400800264
	3.5	1/2 x 5/8	1/4	TC4400800265
	4.5	1/2 x 7/8	1/4	TC4400800266
	6.5	1/2 x 5/8	1/4	TC4400800267
	6.5	1/2 x 7/8	1/4	TC4400800268
	6.5	5/8 x 7/8	1/4	TC4400800269
	9	5/8 x 7/8	1/4	TC4400800270
	11	5/8 x 7/8	1/4	TC4400800351
	13	5/8 x 7/8	1/4	TC4400800271
	TCBEZ	15	5/8 x 7/8	1/4
15		5/8 x 1-1/8	1/4	TC4400800274
19		5/8 x 1-1/8	1/4	TC4400800275
19		7/8 x 1-1/8	1/4	TC4400800276
23		7/8 x 1-1/8	1/4	TC4400800277
23		7/8 x 1-3/8	1/4	TC4400800278

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R407C: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCEZ	3.5	3/8×5/8	1/4	TC4400800280
	3.5	1/2×5/8	1/4	TC4400800281
	4.5	1/2×7/8	1/4	TC4400800282
	6.5	1/2×5/8	1/4	TC4400800283
	6.5	1/2×7/8	1/4	TC4400800284
	6.5	5/8×7/8	1/4	TC4400800285
	9	5/8×7/8	1/4	TC4400800286
	11	5/8×7/8	1/4	TC4400800354
	13	5/8×7/8	1/4	TC4400800287
	TCBEZ	15	5/8×7/8	1/4
15		5/8×1-1/8	1/4	TC4400800290
19		5/8×1-1/8	1/4	TC4400800291
19		7/8×1-1/8	1/4	TC4400800292
23		7/8×1-1/8	1/4	TC4400800293
23		7/8×1-3/8	1/4	TC4400800294

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R410A: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCEL	3.5	3/8×5/8	1/4	TC4400800311
	3.5	1/2×5/8	1/4	TC4400800312
	4.5	1/2×7/8	1/4	TC4400800313
	6.5	1/2×5/8	1/4	TC4400800314
	6.5	1/2×7/8	1/4	TC4400800315
	6.5	5/8×7/8	1/4	TC4400800316
	9	5/8×7/8	1/4	TC4400800317
	11	5/8×7/8	1/4	TC4400800357
	13	5/8×7/8	1/4	TC4400800318
	TCBEL	15	5/8×7/8	1/4
15		5/8×1-1/8	1/4	TC4400800321
19		5/8×1-1/8	1/4	TC4400800322
19		7/8×1-1/8	1/4	TC4400800323
23		7/8×1-1/8	1/4	TC4400800324
23		7/8×1-3/8	1/4	TC4400800325

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R410A: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCEL	3.5	3/8×5/8	1/4	TC4400800295
	3.5	1/2×5/8	1/4	TC4400800296
	4.5	1/2×7/8	1/4	TC4400800297
	6.5	1/2×5/8	1/4	TC4400800298
	6.5	1/2×7/8	1/4	TC4400800299
	6.5	5/8×7/8	1/4	TC4400800300
	9	5/8×7/8	1/4	TC4400800301
	11	5/8×7/8	1/4	TC4400800327
	13	5/8×7/8	1/4	TC4400800302
	TCBEL	15	5/8×7/8	1/4
15		5/8×1-1/8	1/4	TC4400800306
19		5/8×1-1/8	1/4	TC4400800307
19		7/8×1-1/8	1/4	TC4400800308
23		7/8×1-1/8	1/4	TC4400800309
23		7/8×1-3/8	1/4	TC4400800310

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R32: Opening Superheat = 4k, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCEB	3.5	3/8×5/8	1/4	TC4400800328
	3.5	1/2×5/8	1/4	TC4400800329
	4.5	1/2×7/8	1/4	TC4400800330
	6.5	1/2×5/8	1/4	TC4400800331
	6.5	1/2×7/8	1/4	TC4400800332
	6.5	5/8×7/8	1/4	TC4400800333
	9	5/8×7/8	1/4	TC4400800335
	11	5/8×7/8	1/4	TC4400800336
	13	5/8×7/8	1/4	TC4400800337
	TCBEB	15	5/8×7/8	1/4

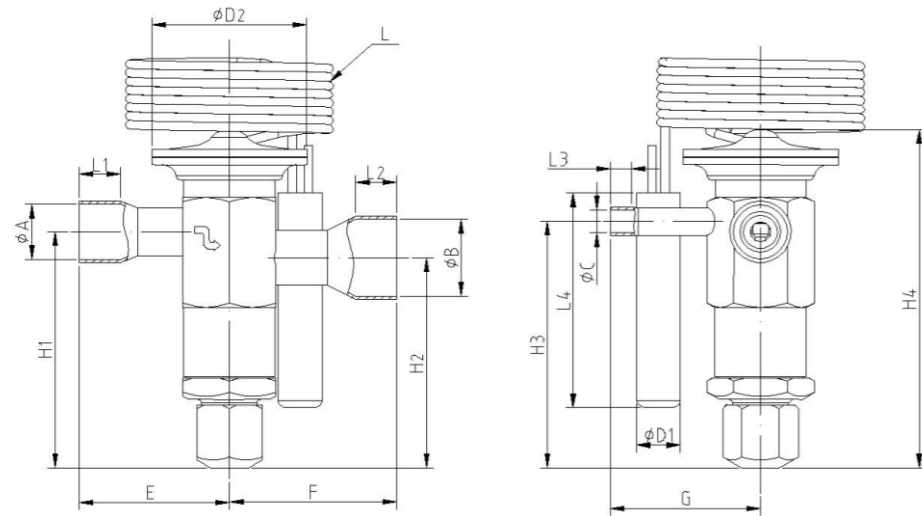
Code numbers listed above refer to standard series. For other requirements, please contact DunAn

R290: Opening Superheat = 4k, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
TCEP	6.5	5/8×7/8	1/4	TC4400800340
	13	5/8×7/8	1/4	TC4400800341
TCBEP	15	5/8×7/8	1/4	TC4400800342
	19	7/8×7/8	1/4	TC4400800343
	23	7/8×7/8	1/4	TC4400800344

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

Dimensions



Model	Connection Inlet × Outlet ODF	L	E	F	G	H1	H2	H3	H4	L1	L2	L3	L4	$\phi D1$	$\phi D2$	ϕC	Weight Kg
		in.	m	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	
TCE	3/8x5/8	1.5	43.5	43.5	44	68	60.5	71	97.5	12	12	6	62	12.7	45	6.4	0.48
	1/2x5/8	1.5															
	1/2x7/8	1.5															
	5/8x7/8	1.5															
TCBE	5/8x7/8	1.5	50.5	56.0	44	72.5	65	78.5	106	12	16	6	76	19	53	6.4	0.62
	5/8x1-1/8	1.5	50.5	60.5													
	7/8x1-1/8	1.5	56.0	60.5													
	7/8x1-3/8	1.5	56.0	65.5													

Thermostatic Expansion Valve TI Series

Application

TI/TIE series is replaceable port component type thermostatic expansion valve used to regulate liquid refrigerant flow injecting into evaporator by sensing the superheat degree of evaporator outlet through thermal bulb and external (internal) balance. TI/TIE series is specially applied for refrigeration, ice machines applications, heat pumps as well as air conditioners.



Features

- Nominal capacity (R134a): 0.19~2.87TR / 0.68~10.1kW
- Adjustable superheat degree design
- Available with MOP function
- Interchangeable orifice assembly makes it easy to match capacity and storage;
- Connection available with Flare and Solder
- Power head uses continuous laser welding, which has high welding strength and long diaphragm life.
- Stainless steel capillary tube and bulb.

Approvals

UL, CE

Technical Data

Applicable refrigerants: R22, R134a, R404A, R507, R407C, R410A and R448A, R449A etc.
 Max. bulb temperature: 100°C
 Max. valve housing temperature: 110°C
 Medium temperature: -40°C ~ +70°C
 Ambient temperature: -30°C ~ +55°C
 Max. operating pressure: 4.6 MPa
 Max. test pressure: 5.1 MPa

Relative humidity: below 95%
 Static superheat adjustment range: 0K ~ 8K
 Static superheat presetting: 5K
 Equalization Connection: 1/4" (Flare/Solder)
 Capillary Tube Length: 1500mm

Identification

Example

TIES-2003 = Model (S:R404A)
Rxxx = Refrigerant
-40/+10°C = Evaporation
TI4300900160 = Ordering Code Number
MOP15 = Max. Operation Pressure
PS 46 bar/MWP667psig = Max. Working Pressure
BB2800001 = Date Marking



Refrigerant

X: R22 N: R134a L: R410A
 Z: R407C S: R404A/R507 K: R448A/R449A

MOP Options

Refrigerant	Range N -40°C ~ +10°C
	MOP +15°C
R22/R407C	6.9 bar
R404A/R507	8.3 bar
R407C	6.6 bar
R134a	3.8 bar
R410A	11.5 bar

Note: only the most representative options are present, for other requirements please contact DunAn.

Nominal Capacity

Orifice No.	R22		R407C		R134a		R404A/R507		R410A		R448A/R449A	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]
0X	0.9	0.25	0.96	0.27	0.68	0.19	0.65	0.18	1.05	0.29	0.87	0.25
00	1.78	0.51	1.87	0.53	1.2	0.34	1.3	0.37	2.08	0.6	1.67	0.5
01	3.48	0.99	3.67	1.04	2.08	0.59	2.64	0.75	4.07	1.16	3.43	0.95
02	4.72	1.34	4.96	1.41	2.55	0.73	3.7	1.05	5.52	1.57	4.60	1.3
03	8.01	2.27	8.45	2.4	4.30	1.22	6.29	1.79	9.37	2.66	7.92	2.29
04	12.2	3.45	12.9	3.67	6.40	1.82	9.97	2.83	14.27	4.04	12.05	3.5
05	16.67	4.76	17.1	4.86	8.43	2.4	13.1	3.71	19.66	5.57	15.7	4.5
06	19.7	5.6	20.5	5.82	10.1	2.87	15.6	4.42	23.05	6.55	19.05	5.5

Nominal capacity is based on:
 1. Evaporating temperature $T_e=4.4^\circ\text{C}$;
 2. Condensing temperature $T_c=38^\circ\text{C}$;
 3. Refrigerant temperature of valve head $T_v=37^\circ\text{C}$;
 4. Superheating degree $\Delta T_{sh}=6\text{K}$.

Ordering

Refrigerant	Model	Connection					Code No.
		Inlet [in.]	Outlet [in.]		Equalization [in.]		Range N = -40 ~ +10°C
		Flare	Flare	Solder	Flare	Solder	Without MOP
R134a	TIN-2001	3/8	1/2	-	-	-	TI4300900116
	TIEN-2001	3/8	1/2	-	1/4	-	TI4300900113
	TIN-2002	3/8	-	1/2	-	-	TI4300900153
	TIEN-2002	3/8	-	1/2	-	1/4	TI4300900154
R404A/ R507	TIS-2001	3/8	1/2	-	-	-	TI4300900118
	TIES-2001	3/8	1/2	-	1/4	-	TI4300900121
	TIS-2002	3/8	-	1/2	-	-	TI4300900157
	TIES-2002	3/8	-	1/2	-	1/4	TI4300900158
R410A	TIL-2001	3/8	1/2	-	-	-	TI4300900125
	TIEL-2001	3/8	1/2	-	1/4	-	TI4300900128
	TIL-2002	3/8	-	1/2	-	-	TI4300900240
	TIEL-2002	3/8	-	1/2	-	1/4	TI4300900241
R407C	TIZ-2001	3/8	1/2	-	-	-	TI4300900103
	TIEZ-2001	3/8	1/2	-	1/4	-	TI4300900106
	TIZ-2002	3/8	-	1/2	-	-	TI4300900238
	TIEZ-2002	3/8	-	1/2	-	1/4	TI4300900239
R448A/R449A	TIK-2001	3/8	1/2	-	-	-	TI4300900132
	TIEK-2001	3/8	1/2	-	1/4	-	TI4300900135
	TIK-2002	3/8	-	1/2	-	-	TI4300900161
	TIEK-2002	3/8	-	1/2	-	1/4	TI4300900162
R22	TIX-2001	3/8	1/2	-	-	-	TI4300900091
	TIEX-2001	3/8	1/2	-	1/4	-	TI4300900099
	TIX-2002	3/8	-	1/2	-	-	TI4300900237
	TIEX-2002	3/8	-	1/2	-	1/4	TI4300900236

For R407C plants. Please select valves from the dedicated R407C program
 Code numbers listed above refer to standard series. For other requirements, please contact DunAn

Refrigerant	Model	Connection					Code No.
		Inlet [in.]	Outlet [in.]		Equalization [in.]		-40°C ~ +10°C
		Flare	Flare	Solder	Flare	Solder	With MOP
R134a	TIN-2003	3/8	1/2	-	-	-	TI4300900155
	TIEN-2003	3/8	1/2	-	1/4	-	TI4300900156
	TIN-2004	3/8	-	1/2	-	-	TI4300900242
	TIEN-2001	3/8	-	1/2	-	1/4	TI4300900243
R404A/ R507	TIS-2003	3/8	1/2	-	-	-	TI4300900159
	TIES-2003	3/8	1/2	-	1/4	-	TI4300900160
	TIS-2004	3/8	-	1/2	-	-	TI4300900244
	TIES-2004	3/8	-	1/2	-	1/4	TI4300900245
R448A/R449A	TIK-2003	3/8	1/2	-	-	-	TI4300900163
	TIEK-2003	3/8	1/2	-	1/4	-	TI4300900164
	TIK-2004	3/8	-	1/2	-	-	TI4300900246
	TIEK-2004	3/8	-	1/2	-	1/4	TI4300900247

Code numbers listed above refer to standard series. For other requirements, please contact DunAn

Connection Nut



Connection [in.]	Code No.
1/4	TI-702-25-04
3/8	TI-702-25-08
1/2	TI-702-25-10

Orifice Assembly with Filter



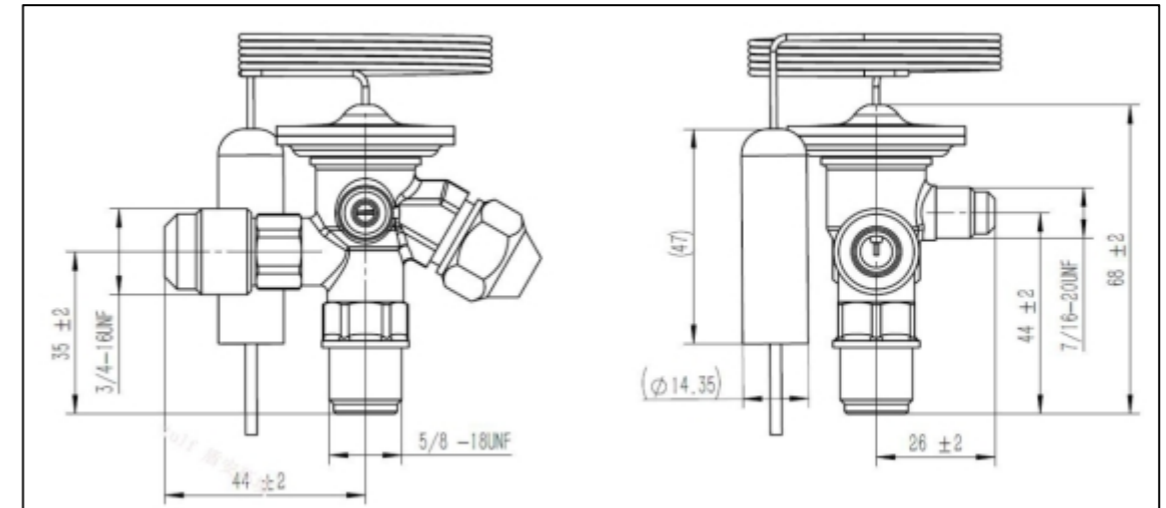
Orifice No.	Code No.
0X	TI-602-00
00	TI-604-00
01	TI-606-00
02	TI-608-00
03	TI-610-00
04	TI-612-00
05	TI-614-00
06	TI-616-00

Inlet Adaptor Nut

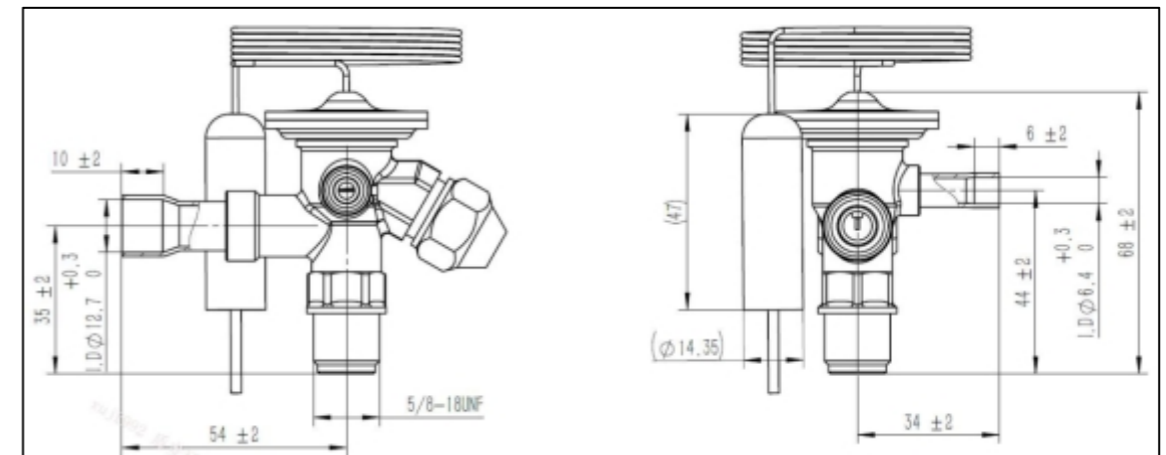


Connection ODF Solder	Code No.
3/8 in.	TI-804-00

Dimensions and Weight



Connection: flare / flare / flare
Weight Approx.: 0.25kg



Connection: flare / solder / solder
Weight Approx.: 0.24kg

Thermostatic Expansion Valve TA Series

Application

TA/TAE series are used to regulate liquid refrigerant flow into evaporators with small and medium size in refrigeration, ice maker, heat pump, and air conditioning systems by sensing the superheat degree of evaporator outlet through thermal bulb and external internal balance tube.



Features

- Nominal capacity (R134a): 0.11 ~ 3TR / 0.4 ~ 10.5kW
- Fixed (angleway type) and adjustable (straightway type) superheat can be supplied;
- Compact structure body design
- Available with strainer in inlet tube;
- Versions with and without external equalization, with and without bleed;
- Available with universal charge, range N or with MOP charge;
- Power head uses continuous laser welding, which has high welding strength and long diaphragm life.
- Stainless steel capillary tube and bulb.

Approvals

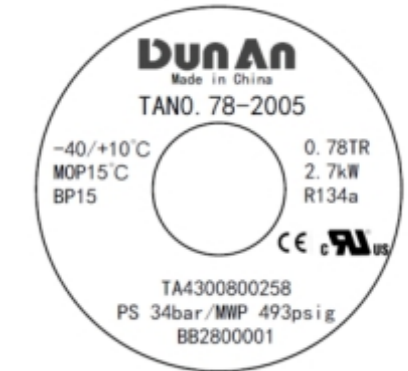
UL, CE

Applicable refrigerants: R134a, R404A, R407C, R448A, R449A, R22, R410A, R507 etc.	
Max. bulb temperature: 100°C	Static state superheat adjustment range: 0K ~ 8K
Max. valve housing temperature: 110°C	Static state superheat presetting: 4K
Medium temperature: -40°C ~ +70°C	Equalization Connection: 1/4" (solderODF)
Ambient temperature: -30°C ~ +55°C	Capillary Tube Length: 750mm
Max. operating. pressure: 3.4MPa (Except R410A)/4.6MPa(R410A)	Bleed: 15% / 30%
Max. test pressure: 3.75 MPa(Except R410A)/5.1MPa(R410A)	Connection: 1/4", 3/8" inlet; 3/8", 1/2" outlet.
Relative humidity: below 95%	

Technical data Identification

Example

TAN0.78-2005 = Model (N=R134a)
0.78TR = Nominal Capacity in Tons
2.7kW = Nominal Capacity in kW
R134a = Refrigerant
-40/+10°C = Evaporating Temperature Range
MOP 15 = Max. Evaporating Pressure
BP15 = Bleed 15%
TA4300800258 = Ordering Code Number
PS 34bar/MWP 493psig = Max. Working Pressure
BB2800001 = Date Marking
Refrigerant
X: R22 Z: R407C N: R134a
S: R404A/R507 P: R290 L: R410A



Nominal Capacity

Model	R134a		R407C		R404A/R507		R290		R448A/449A		R22	
	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW
TA 0	0.11	0.4	0.16	0.5	0.11	0.38	0.17	0.6	0.15	0.5	0.15	0.5
TA 1	0.25	0.9	0.3	1.1	0.21	0.7	0.32	1.2	0.3	1.0	0.3	1.0
TA 2	0.5	1.8	0.8	2.7	0.45	1.6	0.74	2.6	0.7	2.5	0.7	2.5
TA 3	0.78	2.7	1.1	3.8	0.6	2.1	1.1	3.9	1.0	3.5	1.0	3.5
TA 3A	0.9	3.1	1.25	4.3	0.8	2.8	1.25	4.3	1.15	4	1.15	4
TA 4	1.3	4.6	1.6	5.6	1.2	4.2	1.6	5.6	1.5	5.2	1.5	5.2
TA 5	1.9	6.7	2.5	8.6	1.7	6.0	2.4	8.4	2.3	8.0	2	8.0
TA 6	2.5	8.6	3.2	11.3	2.2	7.7	3.2	11.2	3.0	10.5	3	10.5
TA 7	3.0	10.5	4.9	16.7	2.6	9.1	4.7	16.5	4.5	15.5	4.5	15.5

Model	R410A		Nominal capacity is based on: 1. Evaporating temperature T _e =5°C; 2. Condensing temperature T _c =32°C; 3. Refrigerant temperature of valve head T _v =28°C; 4. Static superheat SS=4K; 5. Opening superheat OS=4K.
	KW	TR	
TA 1	1.8	0.5	
TA 2	3.5	1	
TA 3	5.3	1.5	
TA 4	7	2	
TA 5	10.5	3	

MOP Options

Refrigerant	Range N -40 ~ +10°C	Range HP -25 ~ +20°C MOP +25°C	Range K -25 ~ +10°C MOP +15°C	Range AC -25 ~ +15°C MOP +20°C
R134a	(WithoutMOP)	5.6bar	3.9 bar	4.7 bar
R404A/R507	(WithoutMOP)	11.4bar	8.3 bar	9.9 bar
R290	(WithoutMOP)	8.51bar	6.3 bar	7.4 bar
R407C	(WithoutMOP)	9.2bar	6.6 bar	7.8 bar

Note: only the most representative options are presented, for other requirements please contact DunAn.

Ordering

Refrigerant	Model	Nominal capacity ¹⁾		Connection Solder			Code No.
				Inlet x Outlet x Equalization .			
		[kW]	[TR]	Inlet [in.]	Outlet [in.]	Equalization [in.]	Range N=-40/+10°C
							Without MOP
R134a	TAN0.11-2000	0.4	0.11	1/4	3/8	-	TA4300900009
	TAN0.11-2001	0.4	0.11	1/4	3/8	-	TA4300900055
	TAEN0.11-2001	0.4	0.11	1/4	3/8	1/4	TA4300900272
	TAN0.25-2000	0.9	0.25	1/4	3/8	-	TA4300900010
	TAN0.25-2001	0.9	0.25	1/4	3/8	-	TA4300900056
	TAEN0.25-2001	0.9	0.25	1/4	3/8	1/4	TA4300900273
	TAN0.5-2000	1.8	0.5	1/4	3/8	-	TA4300900011
	TAN0.5-2001	1.8	0.5	1/4	3/8	-	TA4300900057
	TAEN0.5-2001	1.8	0.5	1/4	3/8	1/4	TA4300900283
	TAN0.78-2000	2.7	0.78	1/4	3/8	-	TA4300900012
	TAN0.78-2001	2.7	0.78	1/4	3/8	-	TA4300900058
	TAEN0.78-2001	2.7	0.78	1/4	3/8	1/4	TA4300900275
	TAN0.9-2000	3.1	0.9	1/4	3/8	-	TA4300900195
	TAN0.9-2001	3.1	0.9	1/4	3/8	-	TA4300900220
	TAEN0.9-2001	3.1	0.9	1/4	3/8	1/4	TA4300900278
	TAN1.3-2000	4.6	1.3	1/4	3/8	-	TA4300900013
	TAN1.3-2001	4.6	1.3	1/4	3/8	-	TA4300900059
	TAEN1.3-2001	4.6	1.3	1/4	3/8	1/4	TA4300900279
	TAN1.9-2000	6.7	1.9	3/8	1/2	-	TA4300900014
	TAN1.9-2001	6.7	1.9	3/8	1/2	-	TA4300900060
	TAEN1.9-2001	6.7	1.9	3/8	1/2	1/4	TA4300900280
	TAN2.5-2000	8.6	2.5	3/8	1/2	-	TA4300900015
	TAN2.5-2001	8.6	2.5	3/8	1/2	-	TA4300900061
	TAEN2.5-2001	8.6	2.5	3/8	1/2	1/4	TA4300900281
TAN3-2000	10.5	3	3/8	1/2	-	TA4300900016	
TAN3-2001	10.5	3	3/8	1/2	-	TA4300900062	
TAEN3-2001	10.5	3	3/8	1/2	1/4	TA4300900282	
R290	TAP0.17-2000	0.6	0.17	1/4	3/8	-	TA4300900017
	TAP0.17-2001	0.6	0.17	1/4	3/8	-	TA4300900063
	TAEP0.17-2001	0.6	0.17	1/4	3/8	1/4	TA4300900284
	TAP0.32-2000	1.2	0.32	1/4	3/8	-	TA4300900018
	TAP0.32-2001	1.2	0.32	1/4	3/8	-	TA4300900064
	TAEP0.32-2001	1.2	0.32	1/4	3/8	1/4	TA4300900285
	TAP0.74-2000	2.6	0.74	1/4	3/8	-	TA4300900019
	TAP0.74-2001	2.6	0.74	1/4	3/8	-	TA4300900065
	TAEP0.74-2001	2.6	0.74	1/4	3/8	1/4	TA4300900286
	TAP1.1-2000	3.9	1.1	1/4	3/8	-	TA4300900020
	TAP1.1-2001	3.9	1.1	1/4	3/8	-	TA4300900066
	TAEP1.1-2001	3.9	1.1	1/4	3/8	1/4	TA4300900287
	TAP1.25-2000	4.3	1.25	1/4	3/8	-	TA4300900197
	TAP1.25-2001	4.3	1.25	1/4	3/8	-	TA4300900221
	TAEP1.25-2001	4.3	1.25	1/4	3/8	1/4	TA4300900288
	TAP1.6-2000	5.6	1.6	1/4	3/8	-	TA4300900021
	TAP1.6-2001	5.6	1.6	1/4	3/8	-	TA4300900067
	TAEP1.6-2001	5.6	1.6	1/4	3/8	1/4	TA4300900289

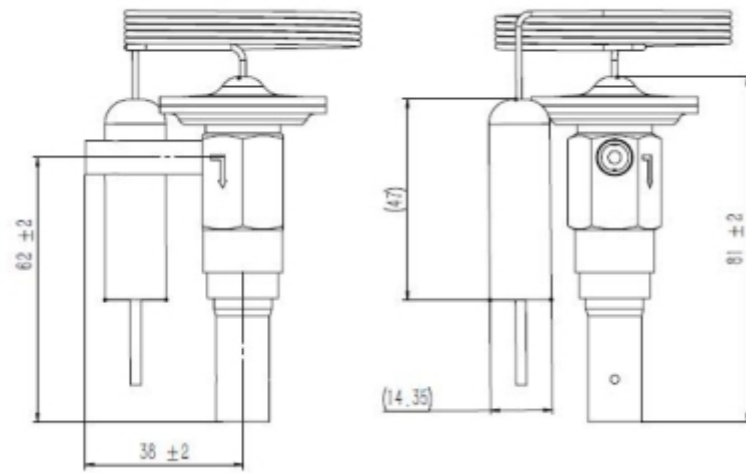
Refrigerant	Model	Nominal capacity ¹⁾		Connection Solder			Code No.
				Inlet x Outlet x Equalization .			
		[kW]	[TR]	Inlet [in.]	Outlet [in.]	Equalization [in.]	Range N=-40/+10°C
							Without MOP
R290	TAP2.4-2000	8.4	2.4	3/8	1/2	-	TA4300900022
	TAP2.4-2001	8.4	2.4	3/8	1/2	-	TA4300900068
	TAEP2.4-2001	8.4	2.4	3/8	1/2	1/4	TA4300900290
	TAP3.2-2000	11.2	3.2	3/8	1/2	-	TA4300900023
	TAP3.2-2001	11.2	3.2	3/8	1/2	-	TA4300900069
	TAEP3.2-2001	11.2	3.2	3/8	1/2	1/4	TA4300900291
	TAP4.7-2000	16.5	4.7	3/8	1/2	-	TA4300900024
	TAP4.7-2001	16.5	4.7	3/8	1/2	-	TA4300900070
	TAEP4.7-2001	16.5	4.7	3/8	1/2	1/4	TA4300900133
	R404A/R507	TAS0.11-2000	0.38	0.11	1/4	3/8	-
TAS0.11-2001		0.38	0.11	1/4	3/8	-	TA4300900079
TAES0.11-2001		0.38	0.11	1/4	3/8	1/4	TA4300900300
TAS0.21-2000		0.7	0.21	1/4	3/8	-	TA4300900040
TAS0.21-2001		0.7	0.21	1/4	3/8	-	TA4300900080
TAES0.21-2001		0.7	0.21	1/4	3/8	1/4	TA4300900301
TAS0.45-2000		1.6	0.45	1/4	3/8	-	TA4300900041
TAS0.45-2001		1.6	0.45	1/4	3/8	-	TA4300900081
TAES0.45-2001		1.6	0.45	1/4	3/8	1/4	TA4300900302
TAS0.6-2000		2.1	0.6	1/4	3/8	-	TA4300900042
TAS0.6-2001		2.1	0.6	1/4	3/8	-	TA4300900082
TAES0.6-2001		2.1	0.6	1/4	3/8	1/4	TA4300900303
TAS0.8-2000		2.8	0.8	1/4	3/8	-	TA4300900198
TAS0.8-2001		2.8	0.8	1/4	3/8	-	TA4300900223
TAES0.8-2001		2.8	0.8	1/4	3/8	1/4	TA4300900305
TAS1.2-2000		4.2	1.2	1/4	3/8	-	TA4300900043
TAS1.2-2001		4.2	1.2	1/4	3/8	-	TA4300900083
TAES1.2-2001		4.2	1.2	1/4	3/8	1/4	TA4300900304
TAS1.7-2000		6	1.7	3/8	1/2	-	TA4300900044
TAS1.7-2001		6	1.7	3/8	1/2	-	TA4300900084
TAES1.7-2001	6	1.7	3/8	1/2	1/4	TA4300900306	
R22	TAS2.2-2000	7.7	2.2	3/8	1/2	-	TA4300900045
	TAS2.2-2001	7.7	2.2	3/8	1/2	-	TA4300900085
	TAES2.2-2001	7.7	2.2	3/8	1/2	1/4	TA4300900151
	TAS2.6-2000	9.1	2.6	3/8	1/2	-	TA4300900046
	TAS2.6-2001	9.1	2.6	3/8	1/2	-	TA4300900086
	TAES2.6-2001	9.1	2.6	3/8	1/2	1/4	TA4300900307
	TAX0.15-2000	0.5	0.15	1/4	3/8	-	TA4300900001
	TAX0.15-2001	0.5	0.15	1/4	3/8	-	TA4300900047
	TAEX0.15-2001	0.5	0.15	1/4	3/8	1/4	TA4300900264
	TAX0.3-2000	1	0.3	1/4	3/8	-	TA4300900002
TAX0.3-2001	1	0.3	1/4	3/8	-	TA4300900048	
TAEX0.3-2001	1	0.3	1/4	3/8	1/4	TA4300900265	
TAX0.7-2000	2.5	0.7	1/4	3/8	-	TA4300900003	
TAX0.7-2001	2.5	0.7	1/4	3/8	-	TA4300900049	
TAEX0.7-2001	2.5	0.7	1/4	3/8	1/4	TA4300900266	

Refrigerant	Model	Nominal capacity ¹⁾		Connection Solder			Code No.	
				Inlet x Outlet x Equalization .				
		[kW]	[TR]	Inlet [in.]	Outlet [in.]	Equalization [in.]	Range N=-40/+10°C	
							Without MOP	
R22	TAX1-2000	3.5	1	1/4	3/8	-	TA4300900004	
	TAX1-2001	3.5	1	1/4	3/8	-	TA4300900050	
	TAEX1-2001	3.5	1	1/4	3/8	1/4	TA4300900267	
	TAX1.15-2000	4	1.15	1/4	3/8	-	TA4300900195	
	TAX1.15-2001	4	1.15	1/4	3/8	-	TA4300900219	
	TAEX1.15-2001	4	1.15	1/4	3/8	1/4	TA4300900224	
	TAX1.5-2000	5.2	1.5	1/4	3/8	-	TA4300900005	
	TAX1.5-2001	5.2	1.5	1/4	3/8	-	TA4300900051	
	TAEX1.5-2001	5.2	1.5	1/4	3/8	1/4	TA4300900268	
	TAX2.3-2000	8	2.3	3/8	1/2	-	TA4300900006	
	TAX2.3-2001	8	2.3	3/8	1/2	-	TA4300900052	
	TAEX2.3-2001	8	2.3	3/8	1/2	1/4	TA4300900269	
	TAX3-2000	10.5	3	3/8	1/2	-	TA4300900007	
	TAX3-2001	10.5	3	3/8	1/2	-	TA4300900053	
	TAEX3-2001	10.5	3	3/8	1/2	1/4	TA4300900270	
	TAX4.5-2000	15.5	4.5	3/8	1/2	-	TA4300900008	
	TAX4.5-2001	15.5	4.5	3/8	1/2	-	TA4300900054	
	TAEX4.5-2001	15.5	4.5	3/8	1/2	1/4	TA4300900271	
	R407C	TAZ0.16-2000	0.5	0.16	1/4	3/8	-	TA4300900031
		TAZ0.16-2001	0.5	0.16	1/4	3/8	-	TA4300900071
TAEZ0.16-2001		0.5	0.16	1/4	3/8	1/4	TA4300900292	
TAZ0.3-2000		1.1	0.3	1/4	3/8	-	TA4300900032	
TAZ0.3-2001		1.1	0.3	1/4	3/8	-	TA4300900072	
TAEZ0.3-2001		1.1	0.3	1/4	3/8	1/4	TA4300900293	
TAZ0.8-2000		2.7	0.8	1/4	3/8	-	TA4300900033	
TAZ0.8-2001		2.7	0.8	1/4	3/8	-	TA4300900073	
TAEZ0.8-2001		2.7	0.8	1/4	3/8	1/4	TA4300900294	
TAZ1.1-2000		3.8	1.1	1/4	3/8	-	TA4300900034	
TAZ1.1-2001		3.8	1.1	1/4	3/8	-	TA4300900074	
TAEZ1.1-2001		3.8	1.1	1/4	3/8	1/4	TA4300900295	
TAZ1.25-2000		4.3	1.25	1/4	3/8	-	TA4300900199	
TAZ1.25-2001		4.3	1.25	1/4	3/8	-	TA4300900222	
TAEZ1.25-2001		4.3	1.25	1/4	3/8	1/4	TA4300900296	
TAZ1.6-2000		5.6	1.6	1/4	3/8	-	TA4300900035	
TAZ1.6-2001		5.6	1.6	1/4	3/8	-	TA4300900075	
TAEZ1.6-2001		5.6	1.6	1/4	3/8	1/4	TA4300900183	
TAZ2.5-2000		8.6	2.5	3/8	1/2	-	TA4300900036	
TAZ2.5-2001		8.6	2.5	3/8	1/2	-	TA4300900076	
TAEZ2.5-2001	8.6	2.5	3/8	1/2	1/4	TA4300900297		
TAZ3.2-2000	11.3	3.2	3/8	1/2	-	TA4300900037		
TAZ3.2-2001	11.3	3.2	3/8	1/2	-	TA4300900077		
TAEZ3.2-2001	11.3	3.2	3/8	1/2	1/4	TA4300900298		
TAZ4.9-2000	16.7	4.9	3/8	1/2	-	TA4300900038		
TAZ4.9-2001	16.7	4.9	3/8	1/2	-	TA4300900078		
TAEZ4.9-2001	16.7	4.9	3/8	1/2	1/4	TA4300900299		
R410A	TAL0.5-2000	0.5	1.8	1/4	3/8	-	TA4300900165	
	TAL0.5-2001	0.5	1.8	1/4	3/8	-	TA4300900166	

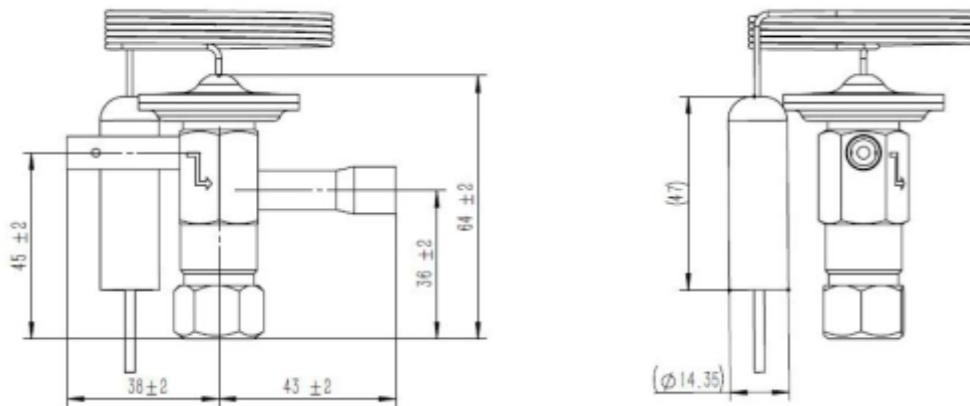
Refrigerant	Model	Nominal capacity ¹⁾		Connection Solder			Code No.
				Inlet x Outlet x Equalization .			
		[kW]	[TR]	Inlet [in.]	Outlet [in.]	Equalization [in.]	Range N=-40/+10°C
							Without MOP
R410A	TAEL0.5-2001	0.5	1.8	1/4	3/8	1/4	TA4300900181
	TAL1-2000	3.5	1	1/4	3/8	-	TA4300900167
	TAL1-2001	3.5	1	1/4	3/8	-	TA4300900168
	TAEL1-2001	3.5	1	1/4	3/8	1/4	TA4300900310
	TAL1.5-2000	5.3	1.5	3/8	1/2	-	TA4300900173
	TAL1.5-2001	5.3	1.5	3/8	1/2	-	TA4300900229
	TAEL1.5-2001	5.3	1.5	3/8	1/2	1/4	TA4300900232
	TAL2-2000	7	2	3/8	1/2	-	TA4300900174
	TAL2-2001	7	2	3/8	1/2	-	TA4300900230
	TAEL2-2001	7	2	3/8	1/2	1/4	TA4300900233
	TAL3-2000	10.5	3	3/8	1/2	-	TA4300900175
	TAL3-2001	10.5	3	3/8	1/2	-	TA4300900231
	TAEL3-2001	10.5	3	3/8	1/2	1/4	TA4300900234

Code numbers listed above refer to standard series. For other requirements, please contact DunAn
1) Nominal capacity is based on: Evaporating temperature T_e=5°C; Condensing temperature T_c=32°C; Refrigerant temperature of valve head T_v=28°C;.
2) The superheat of Angleway type is not adjustable, and the superheat of Straight type is adjustable;

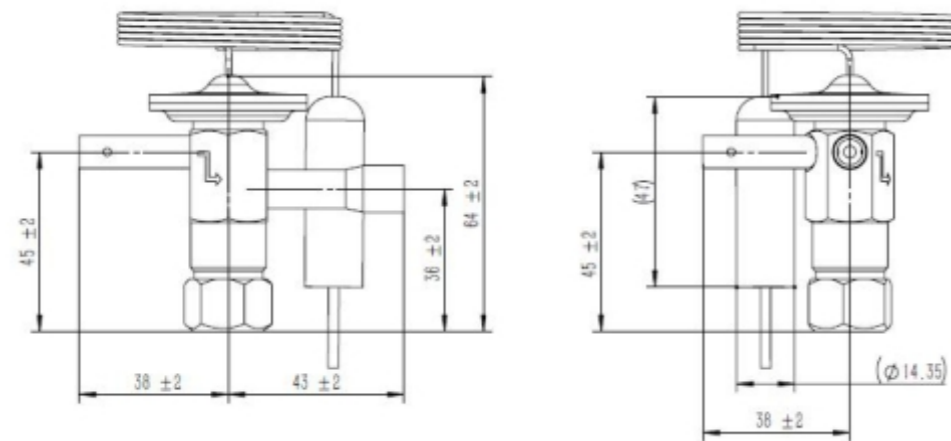
Solenoid Valve FDF-H Series (Commercial)



Angleway, Internal Equalization, Non-Adjustable
Weight Approx.: 0.16 kg



Straightway, Internal Equalization, Adjustable
Weight Approx.: 0.23kg



Straightway, External Equalization, Adjustable
Weight Approx.: 0.23kg



Application

FDF-H series solenoid valves are new developed products with extended pressure and temperature ranges, which meet requirements of new refrigerants, and are suitable for refrigerant controls in heat pumps, air conditioning refrigeration and freezing systems.

Features

- Applied in liquid, suction, and hot gas pipe lines
- Widened operation temperature and pressure range can fulfill challenges of new refrigerants
- High reliability, lifetime $\geq 1\,000\,000$ times
- very low leakage $\leq 10\text{ml/min}$
- Direct operated and piston pilot operated
- NC (normally closed)

Approvals

TÜV, declaration according to LVD or PED

Technical Data

Applicable Refrigerants: R32, R134a, R290, R407C, R410A, R404A, R507, R513A, R454B, and R448A

Media Temperature: $-40^{\circ}\text{C} \sim +140^{\circ}\text{C}$

Ambient Temperature: $-30^{\circ}\text{C} \sim +60^{\circ}\text{C}$

Applicable Relative Humidity: $\leq 95\%$

Model	Opening Pressure Difference of Solenoid Valve With Standard Coil		P _s	K _v ⁽²⁾	
	Min OPD [MPa]	MOPD [MPa] ⁽¹⁾			
			AC	DC ⁽³⁾	[MPa]
FDF3H	0	3.8	2.8	4.5	0.27
FDF6H	0.05				0.8
FDF10H					1.9

⁽¹⁾ Testing with AC coil (FDFX01-1002) in gaseous states.

⁽²⁾ The K_v value is according to the water flow at a differential pressure of 0.1 MPa.

⁽³⁾ For DC coil, please contact DunAn.

Ordering

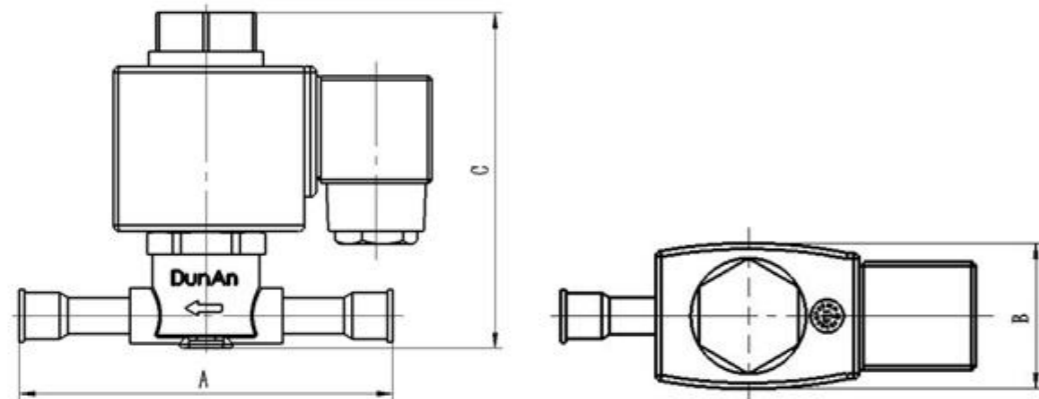
Solder Connection: NC (normally closed)

ODF Connection							
Model	Connection [in.]	Size	Connection [mm.]	Size	Port size [mm]	Code NO.	Actuation
FDF3H-1001	-		6		3	320007002000	Direct
FDF3H-1002	1/4		-		3	320007002100	
FDF6H-1001	-		10		6	320007002200	
FDF6H-1002	3/8		-		6	320007002300	Piston
FDF6H-1003	1/2		-		6	320007002400	
FDF6H-1051[*]	3/8		-		6	320007002500	
FDF6H-1052[*]	-		10		6	320007002600	
FDF6H-1053[*]	1/2		-		6	320007002700	
FDF10H-1001	1/2		-		10	320007002800	
FDF10H-1002	-		16		10	320007002001	
FDF10H-1003	1/2		-		10	320007002900	

[*] compatible with small coil FDFX02-0335

Dimensions

Solder Connection



Model	Connection		A	B	H	Weight
	[in.]	[mm]	[mm]	[mm]	[mm]	[g]
FDF3H-1001	-	6	91	29	84	142
FDF3H-1002	1/4	-	91	29	84	142
FDF6H-1001	-	10	95	31	88	165
FDF6H-1002	3/8	-	95	31	88	162
FDF6H-1003	1/2	-	120	31	88	169
FDF6H-1051	3/8	-	95	31	58	156
FDF6H-1052	-	10	95	31	58	156
FDF6H-1053	1/2	-	120	31	58	164
FDF10H-1001	1/2	-	109	34	95	247
FDF10H-1002	-	16	156	34	95	266
FDF10H-1003	1/2	-	127	34	95	252

Coils

Parameters

Ambient Temperature: -30°C~+55°C

Applicable Relative Humidity: ≤ 95%

Allowable Voltage Range: AC: 85%~110%,

Protection Class: IP65

Model	Voltage [V]	Frequency [Hz]	Rated Power	Connection	Code
FDFX01-1001	AC 110	50/60	16VA	DIN	321010000100
FDFX01-1002	AC 220	50/60	16VA	DIN	321010000200
FDFX01-1009	AC 220	50/60	16VA	Cable	321010000300
FDFX02-0335[*]	AC 24	50/60	7/5W	Cable	321010000400
FDFXD01-1001	DC 12	/	20W	DIN	321010000500
FDFXD01-1002	DC 24	/	20W	DIN	321010000600
FDFXD01-1003	DC 48	/	20W	Cable	321010000700
FDFXD01-1004	DC 48	/	20W	DIN	321010000800
FDFXD01-1005	DC 110	/	20W	DIN	321010000900

[*] protection class: IP65

Solenoid Valve

FDF Series (commercial)

Application

By switching the electromagnetic coil to cut off or activate the refrigerant flow, FDF series solenoid valves are used in refrigerant control of heat pumps, air conditioning, and refrigeration and freezing systems.



Features

- Applied in liquid, suction, and hot gas pipe lines;
- Suitable for all fluorinated refrigerants and flammable refrigerants;
- Special seal gasket;
- NC (normally closed).

Approvals

TUV, declaration according to LVD or PED

Technical Data

Applicable Refrigerants: R32, R134a, R290, R407C, R410A, R404A, and R507

Media Temperature: -30°C~+105°C (FDF2-22); -30°C~+130°C (FDF25-40);

Ambient Temperature: -30°C~+55°C

Applicable Relative Humidity: ≤ 95%

Max. 130°C during defrosting for max. 2h

Model	Opening Pressure Difference of Solenoid Valve With Standard Coil		Ps	Kv ⁽²⁾	Weight
	Min OPD [MPa]	MOPD [MPa] ⁽¹⁾			
			AC	DC	[MPa]
FDF2	0	3.1	1.8	4.5	0.16
FDF3					0.27
FDF6					0.8
FDF10	0.02	3.1	1.8	4.2	1.9
FDF15					2.6
FDF20					6.0
FDF22	0.03	3.1	1.8	4.2	8.0
FDF25					10.0
FDF32					16.0
FDF40					25.0

⁽¹⁾ Testing with AC coil (FDFX01-1002) in gaseous states.

⁽²⁾ The Kv value is according to the water flow at a differential pressure of 0.1 MPa.

⁽³⁾ For DC coil, please contact DunAn.

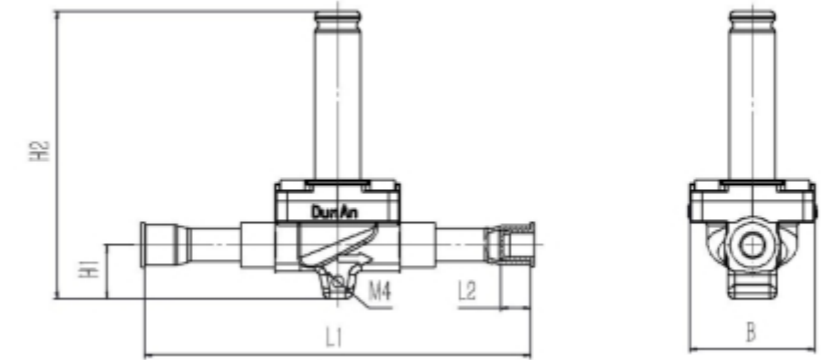
Ordering

Flare Connection: NC (normally closed)

Model	SAE Connections			Actuation
	Connection	Size	Code NO.	
FDF2-2001	1/4	6	320005008400	Direct
FDF3-2001	1/4	6	320007000800	
FDF3-2002	3/8	10	320007000900	
FDF6-2001	3/8	10	320009005300	Diaphragm
FDF6-2002	1/2	12	320009005400	
FDF10-2001	1/2	12	320011001000	
FDF10-2002	5/8	16	320011001100	
FDF15-2001	5/8	16	320012001000	
FDF15-2002	7/8	22	320012001100	

Solder Connection: NC (normally closed)

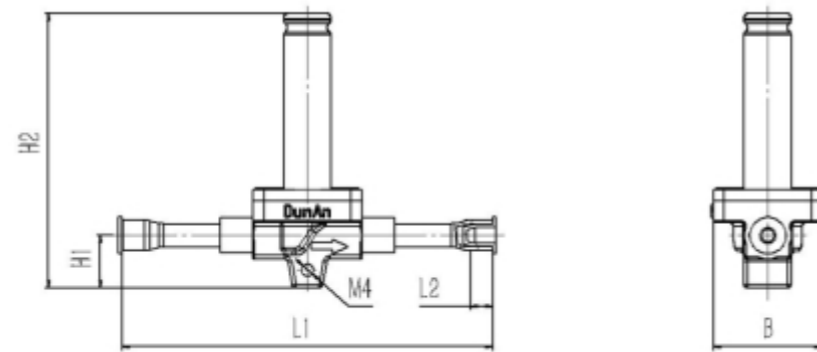
ODF Connection						
Model	Connection Size [in.]	Code NO.	Model	Connection Size [mm.]	Code NO.	Actuation
FDF2-1001	1/4	32005008100	FDF2-1002	6	32005008300	Direct
FDF3-1001	1/4	32007000100	FDF3-1005	6	32007000500	
FDF3-1002	3/8	32007000200	FDF3-1006	10	32007000700	
FDF6-1001	3/8	32009004900	FDF6-1003	10	32009005100	
FDF6-1002	1/2	32009005000	FDF6-1004	12	32009005200	
FDF10-1001	1/2	320011000300	FDF10-1004	12	320011000900	
FDF10-1002	5/8	320011000400	FDF10-1002	16	320011000400	Diaphragm
FDF15-1003	5/8	320012000200	FDF15-1003	16	320012000200	
FDF15-1004	3/4	320012000400	FDF15-1004	19	320012000400	
FDF15-1005	7/8	320012000500	FDF15-1005	22	320012000500	
FDF20-1001	3/4	320013003800	FDF20-1001	19	320013003800	
FDF20-1002	7/8	320013003900	FDF20-1002	22	320013003900	
FDF20-1003	9/8	320013004000	FDF20-1005	28	320013004300	
FDF22-1001	11/8	320014000100	FDF22-1001	35	320014000100	
FDF25-1001	9/8	320015000300	FDF25-1003	28	320015000500	
FDF25-1002	11/8	320015000400	FDF25-1002	35	320015000400	
FDF32-1001	11/8	320016000100	FDF32-1001	35	320016000100	Piston
FDF32-1002	13/8	320016000200	FDF32-1002	42	320016000200	
FDF40-1001	13/8	320017000600	FDF40-1001	42	320017000600	
FDF40-1002	17/8	320017000700	FDF40-1002	54	320017000700	



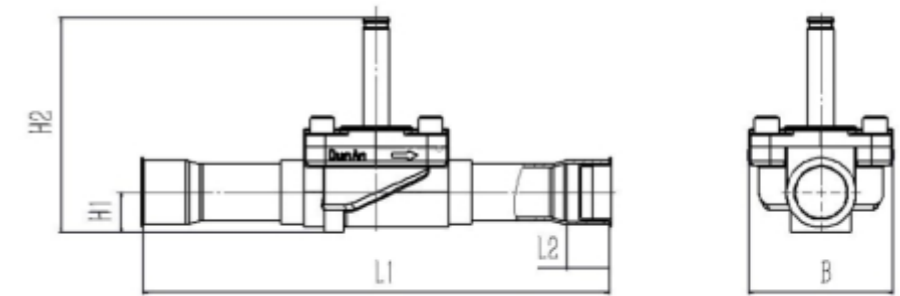
Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF6	3/8	10	13	80	112	9	36
	1/2	12	13	80	128	10	36
FDF10	1/2	12	17	95	128	10	46
	5/8	16	17	95	156	12	46

Dimensions

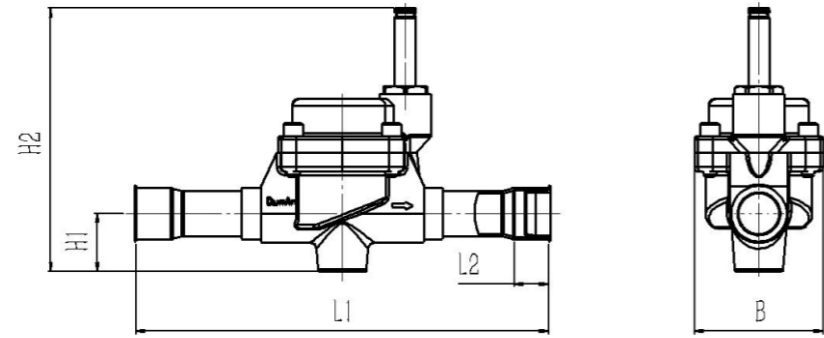
Solder Connection



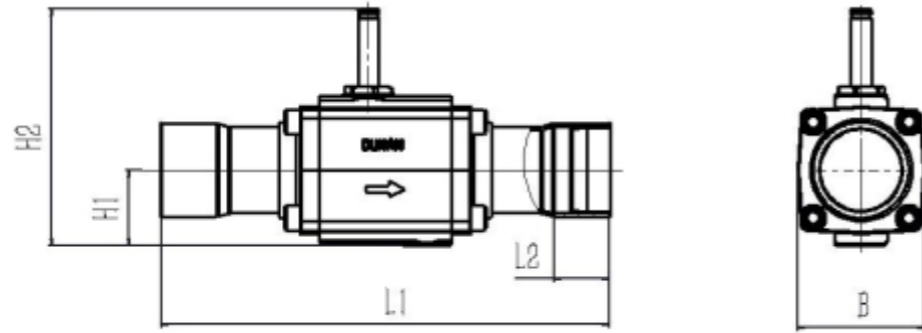
Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF2	1/4	6	12	76	102	7	30
FDF3	1/4	6	12	76	102	7	30
	3/8	10	12	76	108	9	30



Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF15	5/8	16	18	100	166	12	56
	3/4	19	18	100	166	17	56
	7/8	22	18	100	176	17	56
FDF20	3/4	19	20	107	182	17	72
	7/8	22	20	107	182	17	72
	9/8	28	20	107	232	22	72
FDF22	11/8	35	20	107	258	25	72

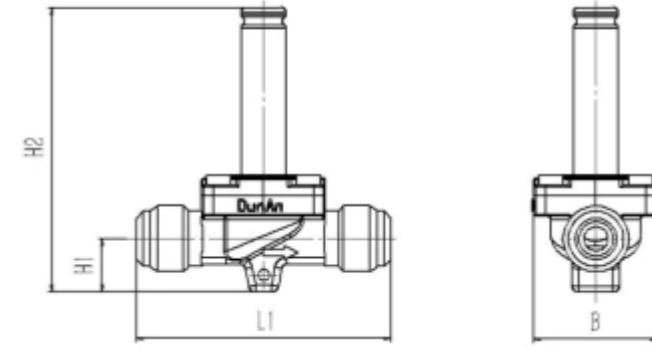


Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF25	9/8	28	36	164	256	22	80
	11/8	35	36	164	281	25	80



Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF32	11/8	35	47.5	148	281	25	80
	13/8	42	47.5	148	281	28	80
FDF40	13/8	42	47.5	148	281	28	80
	17/8	54	47.5	148	281	35	80

Flare Connection



Model	Connection		H1	H2	L1	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF2	1/4	6	12	76	58	30
FDF3	1/4	6	12	76	58	30
	3/8	10	12	76	64	30
FDF6	3/8	10	13	80	70	36
	1/2	12	13	80	74	36
FDF10	1/2	12	17	95	86	46
	5/8	16	17	95	92	46
FDF15	5/8	16	18	100	106	56
	7/8	22	18.0	100	106	56

Coils Parameters

Ambient Temperature: -30°C~+55°C
 Applicable Relative Humidity: ≤95%
 Allowable Voltage Range: AC: 85%~110%,
 Protection Class: IP65

Model	Voltage [V]	Frequency [Hz]	Rated Power	Connection	Code
FDFX01-1001	AC 110	50/60	16VA	DIN	321010000100
FDFX01-1002	AC 220	50/60	16VA	DIN	321010000200
FDFX01-1009	AC 220	50/60	16VA	Cable	321010000300
FDFXD01-1001	DC 12	-	20W	DIN	321010000500
FDFXD01-1002	DC 24	-	20W	DIN	321010000600
FDFXD01-1003	DC 48	-	20W	Cable	321010000700
FDFXD01-1004	DC 48	-	20W	DIN	321010000800
FDFXD01-1005	DC 110	-	20W	DIN	321010000900

Solenoid Valve

FDF Series(Residential)

Application

FDF series solenoid valves for application in residential units include direct-driven and pilot operated types, and are mainly used in liquid, suction and hot gas line of heat pumps, air conditioning, and refrigeration and freezing systems.



Features

- Application spectrum has extended into systems under potentially explosive conditions
- Superior tightness ensured by high quality synthetic seal gasket material
- For application at higher temperature, please contact DunAn.

Approvals

IECEX, VDE or PED

Technical Data

Applicable Refrigerants: R32, R134a, R290, R407C, R410A, R404A, and R507

Medium Temperature: -30°C~+120°C

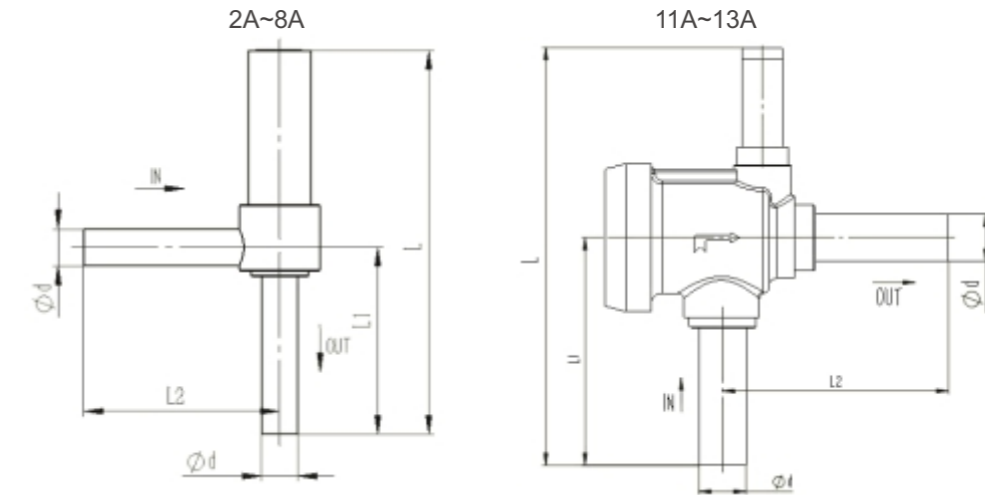
Ambient Temperature: -30°C~+50°C

Applicable Relative Humidity: ≤95%

Model number	Receiving dimensions	KV [m ³ /h]	Ps [MPa]	Max OPD [MPa]	Min OPD [MPa]
	[inch]				
FDFS2A-003	1/4	0.08	4.5	3.4	0
FDF2A-064	1/4	0.08	4.5	3.4	0
FDF2.2A-011	1/4	0.12	4.5	2.1	0
FDF2.5A-014	1/4	0.16	4.5	2.1	0
FDF4A-009	1/4	0.3	4.5	3.4	0.01
FDF6A-065	5/16	0.56	4.5	3.4	0.01
FDF8A-002	3/8	0.94	4.5	2.1	0.01
FDF11A-001	1/2	2.4	4.5	2.8	0.02
FDF13A-007	5/8	3.4	4.5	2.8	0.02

⁽¹⁾MOPD Testing with AC coil (FDFX02-0048) in gaseous states

Ordering & Dimensions



Model	Code	Connection Φ d	Dimensions		
			L	L1	L2
		[mm]	[mm]	[mm]	[mm]
FDFS2A-003	320005024100	6.35	68	34	34
FDF2A-064	320005018608	6.35	67	34	35
FDF2.2A-011	320020000104	6.35	67	34	35
FDF2.5A-014	320006002904	6.35	67	34	35
FDF4A-009	320008002000	6.35	78	34	36
FDF6A-065	320009024316	8.00	79	35	36
FDF8A-002	320010001800	9.52	117	70	70
FDF11A-001	320018000404	12.70	113.5	62	62
FDF13A-007	320019000900	15.88	115.5	61	61

Coils

Model	Voltage	Frequency	Protection	Connection	Code
FDFX02-0046	AC 100	50/60Hz	IP54	Cable with 0.6m	321013006700
FDFX02-0047	AC 110				321005011700
FDFX02-0048	AC 200				321013006800
FDFX02-0049	AC 220				321005009600
FDFX02-0050	AC 230				321009000600

Note: 1. wire terminal, sheath, and cable length can be customized upon request;
2. For DC coil, please contact DunAn;

Ball Valve FQ Series



Application

FQ series ball valves are used in liquid lines, suction lines, and hot gas lines in refrigeration and air conditioning systems to manually open or close refrigerant flow. The access port type is also supplied.

Features

- Applicable to large commercial, central air-conditioning and refrigeration equipment;
- Open cavity is of a straight through type with large flow and little resistance;
- Modified polymer to ensure tightness, and long lifetime;
- Bi-directional flow with low pressure drop;
- Small installation space required

Approvals

UL, Declaration according to PED.

Technical Data

Applicable Refrigerants: R134a, R407C, R410A, R404A, R1234yf, R1234ze, R454B, R513A, R32 and R290

Medium Temperature: -40°C~+120°C

Ambient Temperature: -30°C~ +70°C

Max. Operating Pressure: 4.9 MPa (DN4~DN20)

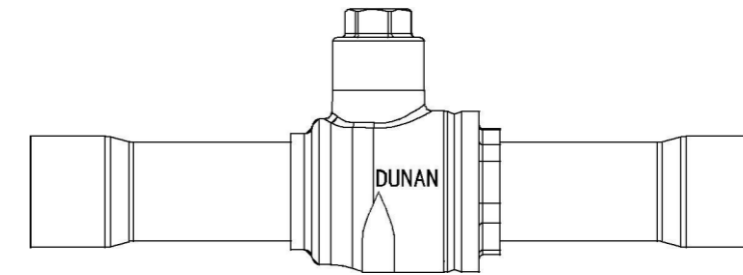
Max. Operating Pressure: 4.5 MPa (DN25~DN75)

Applicable Relative Humidity: 95%

Max. Leakage Rate < 2.83g/year

Ordering

Without Access Port

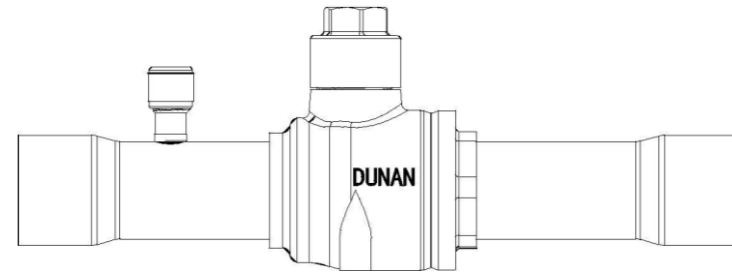


Model ⁽²⁾	Port Size [in.]	ODF Connection			Kv ⁽¹⁾ [m ³ /h]
		Code No.	Port Size [mm]	Code No.	
FQ-110-DN4	1/4	380004011000	6	380004011200	1.66
FQ-110-DN8	3/8	380008011000	10	380008011200	4.68
FQ-110-DN10	1/2	380010011000	12	380010011200	6.73
FQ-110-DN13	5/8	380013011000	16	380013011200	10.4
FQ-110-DN15	3/4	380015011000	19	380015011200	15.7
FQ-110-DN20	7/8	380020011000	22	380020011200	23.6
FQ-110-DN25	9/8	380025011000	28	380025011200	43.8
FQ-110-DN32	1 1/8	380032011000	35	380032011200	76.8
FQ-110-DN40	1 3/8	380040011200	42	380040011200	98.5
FQ-110-DN50	1 7/8	380050011000	54	380050011200	210.3
FQ-110-DN65	2 1/8	380065011000	67	380065011200	346.6
FQ-110-DN75	2 5/8	380075011000	79	380075011200	477.6

⁽¹⁾ Kv factor is defined as the cold-water flow in m³/h under a pressure drop of 1 bar and valve completely open.

⁽²⁾ X = 0 stands for imperial units, X = 2 stands for metric units.

With Access Port

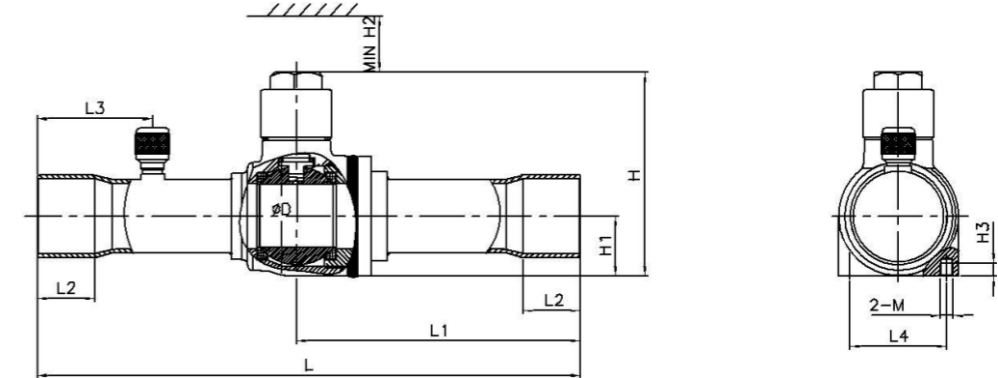


Model	ODF Connection				KvValve (1) [m ³ /h]
	Port Size [in.]	Code No.	Port Size [mm]	Code No.	
FQ-116-DN4	1/4	380004011600	/	/	1.66
FQ-116-DN8	3/8	380008011600	10	380008011800	4.68
FQ-116-DN10	1/2	380010011600	12	380010011800	6.73
FQ-116-DN13	5/8	380013011600	16	380013011800	10.4
FQ-116-DN15	3/4	380015011600	19	380015011800	15.7
FQ-116-DN20	7/8	380020011600	22	380020011800	23.6
FQ-116-DN25	9/8	380025011600	28	380025011800	43.8
FQ-116-DN32	11/8	380032011600	35	380032011800	76.8
FQ-116-DN40	13/8	380040011800	42	380040011800	98.5
FQ-116-DN50	17/8	380050011600	54	380050011800	210.3
FQ-116-DN65	21/8	380065011600	67	380065011800-	346.6
FQ-116-DN75	25/8	380075011600	79	380075011800-	477.6

⁽¹⁾ Kv factor is defined as the cold-water flow in m³/h under a pressure drop of 1 bar and valve completely open.

⁽²⁾ X = 6 stands for imperial units, X = 8 stands for metric units.

Dimensions



Without Access Port

Model	Connection Size		D [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Screw M [mm]
	[in.]	[mm]											
DN4	1/4	6	10	155.1	82.9	8	-	16	52	16.5	21	5	M4×0.7
DN8	3/8	10	10	138.5	74.6	10	-	16	52	16.5	21	5	M5×0.8
DN10	1/2	12	10	138.5	74.6	10	-	16	52	16.5	21	5	M5×0.8
DN13	5/8	-	12.5	160	85	12.5	-	19	53	16	21	5	M5×0.8
DN15	3/4	-	15	160.5	84.6	17	-	23.5	55	17	24	5	M5×0.8
DN20	7/8	-	19	184.5	97	17	-	29.5	66	19.3	24	5	M5×0.8
DN25	9/8	28	24	208	109	22	-	37	78	23	24	5	M5×0.8
DN32	11/8	-	38	251.5	132.7	25	-	43	91.6	30	28	5	M5×0.8
DN40	13/8	42	38	280	146	28	-	58	105.7	35	28	10	M6×1.0
DN50	17/8	-	50	305	157.5	35	-	78	125	45	28	10	M6×1.0
DN65	21/8	-	63	343.5	177.5	37	-	89	146.5	55	32	15	M10×1.0
DN75	25/8	-	74	408	208	42	-	114	177	67	32	15	M10×1.0

With Access Port

Model	Connection Size		D [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Screw M [mm]
	[in.]	[mm]											
DN8	3/8	10	10	138.5	74.6	10	29	16	52	16.5	21	5	M4×0.7
DN10	1/2	12	10	138.5	74.6	10	29	16	52	16.5	21	5	M5×0.8
DN13	5/8	-	12.5	160	85	12.5	31	19	53	16	21	5	M5×0.8
DN15	3/4	-	15	160.5	84.8	17	34	23.5	55	17	24	5	M5×0.8
DN20	7/8	-	19	184.5	97	17	37	29.5	66	19.3	24	5	M5×0.8
DN25	9/8	28	24	208	109	22	44	37	78	23	24	5	M5×0.8
DN32	11/8	-	32	251.5	132.7	25	52	43	91.6	30	28	5	M5×0.8
DN40	13/8	42	38	280	146	28	57	58	105.7	35	28	10	M6×1.0
DN50	17/8	-	50	305	157.5	35	61	78	125	45	28	10	M6×1.0
DN65	21/8	-	63	343.5	177.5	37	72	89	146.5	55	32	15	M10×1.0
DN75	25/8	-	74	408	208	42	79	114	177	67	32	15	M10×1.0

Check Valve FDM Series

Application

FDM series check valves use magnetic diaphragm design with metal sealing structure, built-in guiding device, and self-closing structure, allowing installation angles in all directions without any limit.



Features

- Self-closing structure ensures the installation angles in all directions without any limit;
- Low internal leakage

Approvals

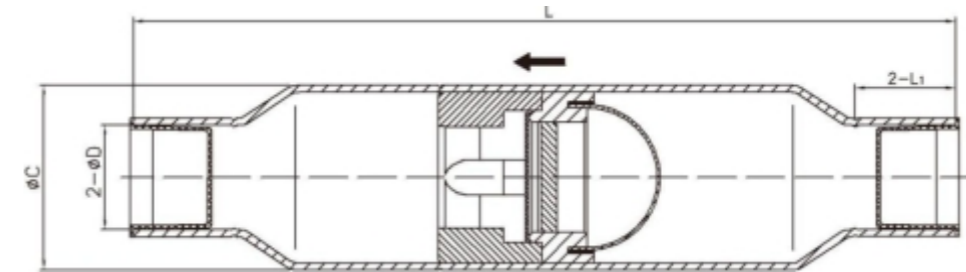
Declaration according to PED

Technical Data

Applicable Refrigerants: R32, R134a, R407C, R410A, R404A, R290, R1234yf, R454B and R513A

Medium Temperature: -30°C~+120°C

Ordering and Dimensions



Model	Code No.	Connection	Dimensions			Max. Operating Pressure [MPa]	Pressure Drop Across Valve ΔP [MPa]	Kv [m ³ /h]
		ΦD [in.]	C [mm]	L [mm]	L1 [mm]			
FDM1006-0002	260510002002	1/4	22.3	102	10	5	0.01	0.65
FDM1010-0002	260510002004	3/8	22.3	100	10	5	0.01	1.29
FDM1613-0002	260516002002	1/2	28,6	127	14	4.5	0.01	2.49
FDM1616-0002	260516002004	5/8	28,6	127	15.5	4.5	0.01	2.83
FDM1619-0002	260516002006	3/4	28,6	127	14	4.5	0.01	3.17
FDM1622-0002	260516002008	7/8	28,6	127	18	4.5	0.01	3.51
FDM1822-0001	260515000101	7/8	35	178	15	4.5	0.01	3.77
FDM2519-0001	260524000101	3/4	41	178	18	4.5	0.02	4.54
FDM2522-0001	260533000101	7/8	41	178	21	4.5	0.02	7.2
FDM2529-0001	260516000101	9/8	41	206	18	4.5	0.02	7.5
FDM3229-0001	260517000101	9/8	54	213	25.5	4.5	0.02	14.48
FDM3835-0001	260518000101	11/8	67	238	26	3.5	0.02	19.02
FDM4842-0001	260519000101	13/8	80	267	28	3.5	0.03	31.96
FDM5754-0001	260520000101	17/8	92	305	34	3.5	0.05	56.04
FDM6567-0001	260521000101	21/8	105	330	38	3.5	0.05	65.04
FDM6580-0001	260522000101	25/8	105	330	38	3.5	0.05	74.98

Check Valve FDH Series

Application

FDH series check valve with built-in piston is designed to control the correct flow direction, can be used in liquid, suction and hot gas lines in commercial refrigeration system and air conditioning systems.



Features

- The valve ensures only correct flow direction;
- Damping spring design makes the free installation;
- Reinforced spring type designed for compressor discharge pipes in single or multi compressor system.

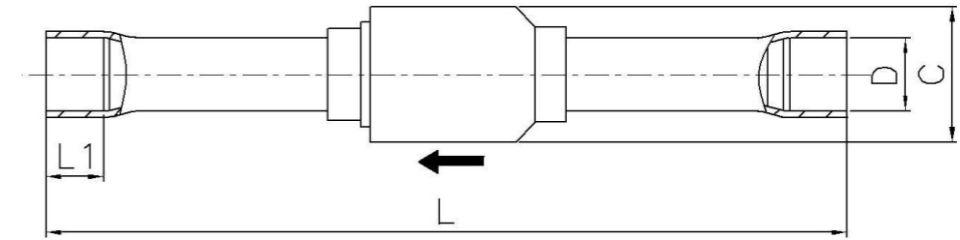
Approvals

Declaration according to PED

Technical Data

Applicable Refrigerants: R32, R134a, R407C, R410A, R404A, R290, R1234yf, R454B and R513A
Medium Temperature: -50°C~+140°C

Ordering and Dimensions



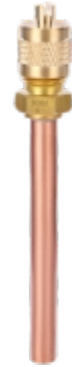
Model	Code No.	Dimensions				Max. Operating Pressure [MPa]	Pressure Drop Across Valve ΔP [MPa]	Kv [m ³ /h]
		C [mm]	D [mm]	L [mm]	L ₁ [mm]			
FDH0506-0001	260605002001	18	6.5	90	7	4.9	0.005	0.67
FDH0810-0001	260608002001	18	9.6	109	9	4.9	0.005	1.29
FDH1013-0001	260610000501	22	12.7	131	10	4.6	0.005	2.06
FDH1316-0002	260571160100	28	16.2	139	12	4.6	0.005	3.60
FDH1619-0001	260610001801	34	19.3	165	15	4.6	0.005	5.50
FDHY1622-0001	260571190100	34	22.3	165	19	4.6	0.015	5.50

The Kv value is according to the water flow at a differential pressure of 0.1 MPa.
Flow Unit: m³/h; Density: 1000 kg/m³.

Charge Valve FJT Series

Application

Charge valves are used to charge refrigerant and check the pressure of refrigerating and air-conditioning system.



Features

Combination of soft seal and hard seal ensures airtightness

Approvals

Declaration according to PED

Technical Data

Applicable Refrigerant: R134a, R407C, R410A, R32, R404A, R290, R454B and R1234yf

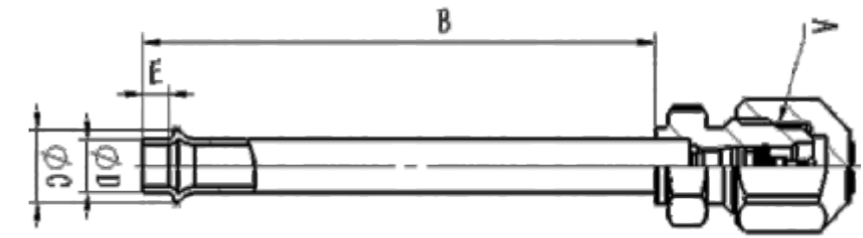
Applicable Relative Humidity: ≤95%

Medium Temperature: -30°C~+120°C

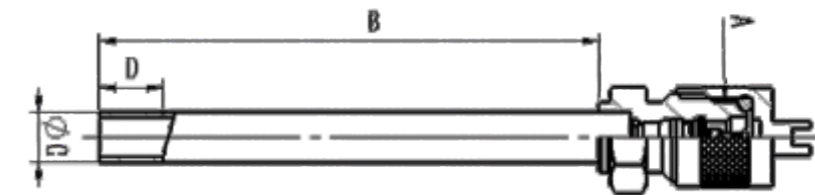
Ambient Temperature: -30°C~+70°C

Max. Operating Pressure: 4.5 MPa

Ordering and Dimensions



Model	Code No.	Connections			Dimensions			Applicable Refrigerant
		Solder ODF Φ D		Flare A	B	Φ C	E	
		[mm]	[in.]	[in.]	[mm]	[mm]	[mm]	
FJT-8854-DG4	280004885400	6.35	1/4	1/2-20 UNF	60	8.5	3	R32, R410A, R290 R407C, R134a, R404A, R454B, R1234yf
FJT-8851-DG4	280004885100	6.35	1/4	7/16-20 UNF	60	8.5	3	



Model	Code No.	Connections			Dimensions		Applicable Refrigerant
		Solder ODF Φ C		Flare A	B	D	
		[mm]	[in.]	[in.]	[mm]	[mm]	
FJT-4363-DG4	280004436300	6.5	1/4	1/2-20 UNF	60	8	R32, R410A, R290 R407C, R134a, R404A, R454B, R1234yf
FJT-8856-DG4	280004885600	6.5	1/4	7/16-20 UNF	60	8	

Service Valve FJ Series

Application

Service valves are used to connect indoor and outdoor units, close or open the refrigerant circuit, and evacuate the refrigerant or charge refrigerant into split air conditioner system.



Features

Combination of soft seal and hard seal ensures airtightness

Approvals

Declaration according to PED

Technical Data

Applicable Medium: R134a, R407C, R410A, R32, R404A, R290, R454B and R1234yf

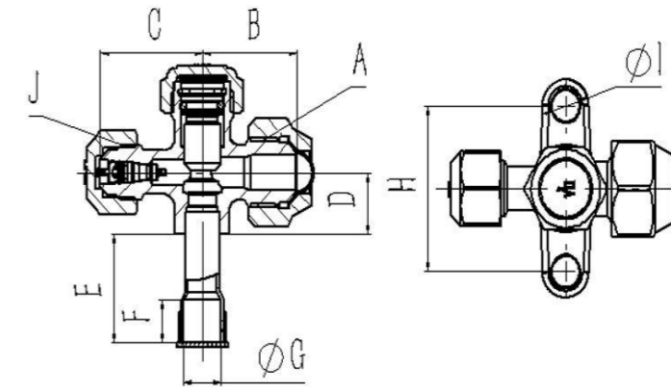
Applicable Relative Humidity: ≤ 95%

Medium Temperature: -30°C~+120°C

Ambient Temperature: -30°C~+70°C

Max. Operating Pressure: 4.5 MPa

Ordering and Dimensions

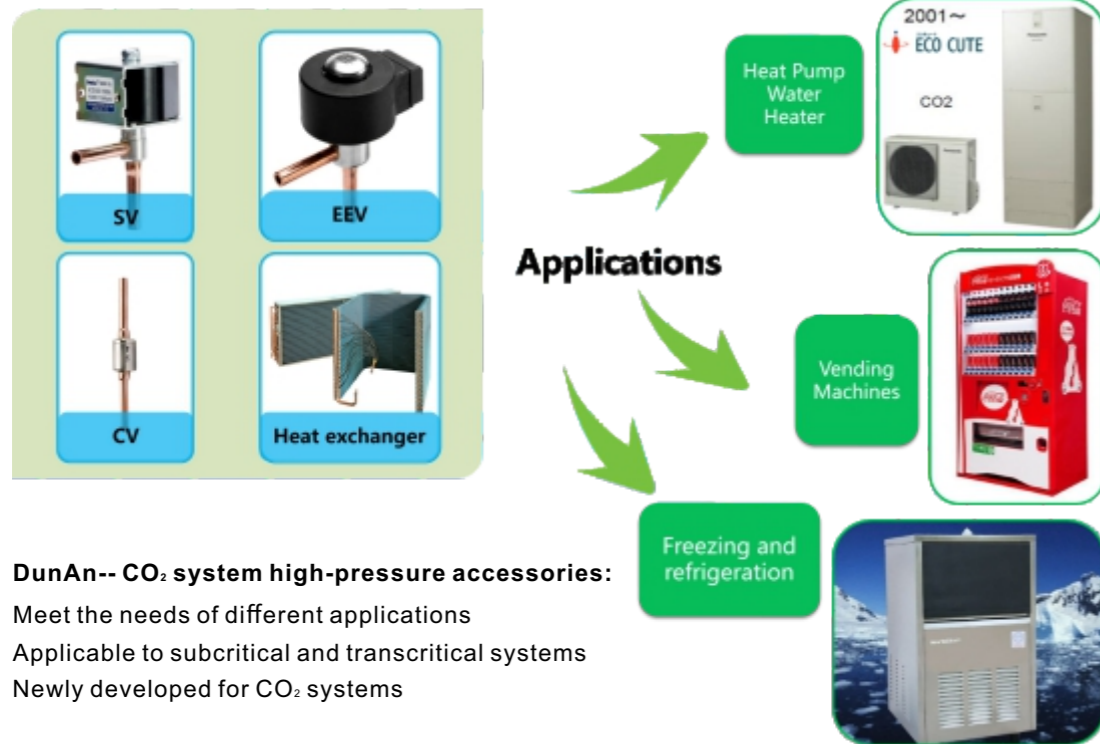


Model	Code No.	Port [mm]	A	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	Applicable Refrigerant
FJ04	FJ2800048800	4.8	7/16-20UNF	22.5	-	13	25	8	6.5	R410A R32 R290 R454B
FJ08	FJ2800088800	7	5/8-18UNF	24.5	26.5	14		10	9.7	
FJ10	FJ2800108800	10	3/4-16UNF	27.5	27	15		10	12.9	
FJ13	FJ2800138800	13	7/8-14UNF	33.5	28.5	17		10	16.1	
FJ16	FJ2800168800	16	17/16-14UNS	38.5	30	21	10	19.2		
FJ04	FJ2800048800	4.8	7/16-20UNF	22.5	-	13	25	8	6.5	R407C R134a R404A R1234yf
FJ08	FJ2800088802	7	5/8-18UNF	24.5	26.5	14		10	9.7	
FJ10	FJ2800108802	10	3/4-16UNF	27.5	27	15		10	12.9	
FJ13	FJ2800138802	13	7/8-14UNF	33.5	28.5	17		10	16.1	
FJ16	FJ2800168802	16	17/16-14UNS	38.5	30	21		10	19.2	

(continued)

Model	Code No.	H [mm]	I [mm]	J	Kv [m³/h]		Applicable Refrigerant
					Connection tube Nut side inlet	Connection cooper tube side inlet	
FJ04	FJ2800048800	38	7.2	/	0.45	0.50	R410A R32 R290 R454B
FJ08	FJ2800088800	38	7.2	1/2-20UNF	0.91	1.19	
FJ10	FJ2800108800	38	7.2		1.90	2.30	
FJ13	FJ2800138800	38	7.2		3.17	3.47	
FJ16	FJ2800168800	44	7.2			4.68	5.55
FJ04	FJ2800048800	38	7.2	/	0.45	0.50	R407C R134a R404A R1234yf
FJ08	FJ2800088802	38	7.2	7/16-20UNF	0.91	1.19	
FJ10	FJ2800108802	38	7.2		1.90	2.30	
FJ13	FJ2800138802	38	7.2		3.17	3.47	
FJ16	FJ2800168802	44	7.2		4.68	5.55	

CO₂ (R744) Products



DunAn-- CO₂ system high-pressure accessories:
 Meet the needs of different applications
 Applicable to subcritical and transcritical systems
 Newly developed for CO₂ systems

Your request is our highest goal!

The above products can be cooperative developed according to the actual requirements of customers

For special customers ,we can develop other products, such as CO2 cut-off valve, CO2 controller (machine, expansion valve), CO2 sensor, CO2 ball valve, CO2 accumulator, CO2 pipes , water pipes, etc.

DunAn has the ability to provide customers for CO2 system with suitable refrigeration accessories:CO2 electronic expansion valve, solenoid valve, CO2 heat exchanger, CO2 check valve.

CO₂ Electronic Expansion Valve HEV Series



Application

HEV Series electronic expansion valve is designed for application CO₂ systems, such as HP water heater, freezing and refrigerating systems. Thanks to precise control and automatic regulation of refrigerant flow, rapid response to cooling or heating can be achieved, efficiency of system in turn could be significantly improved.

Features

- Compact and lightweight design;
- Advanced laser welding technology ensures reliability at high operating pressure level;
- Lower refrigerant running noise;
- New material provides good corrosion resistance.

Technical Data

Applicable Medium: R744 (CO₂) + PAG oil
 Relative Humidity: 95%
 Medium Temperature: -30°C~+70°C (energized rate below 50%)
 Ambient Temperature: -30°C~+70°C (energized rate below 50%)
 Max. Operating Pressure: 14.0 MPa
 Internal Leakage: φ1.0~φ2.0: ≤600mL/min (except EEV without shut off function)
 φ2.0~φ2.4: ≤1000mL/min (except EEV without shut off function)
 φ2.4~φ4.0: ≤1500mL/min (except EEV without shut off function)

Uni-directional flow
 Life Cycle: ≥ 100,000

Specification

Model	Orifice Φ [mm]	Nominal Capacity (1) [kW]	Max. Operating Pressure [MPa]	MOPD [MPa]	Connection [mm]	Code No.
HEV1.0-001	1.0	5.0	14	10	6.35	31001116502
HEV1.2-001	1.2	6.9				31001300401
HEV1.4-001	1.4	9.0				310010001602
HEV1.8-001	1.8	15.5				310006141701

Model	Orifice Φ [mm]	Nominal Capacity [1] [kW]	Max. Operating Pressure [MPa]	MOPD [MPa]	Connection [mm]	Code No.
HEV2.0-001	2.0	20.2	14	10	6.35	310007157401
HEV2.4-P001	2.4	29.3			7.94	310003228001
HEV3.0-P001	3.0	110			12.7	310004014201
HEV4.0-P001	4.0	145			12.7	310017016401

[1] Normal capacities are based on:

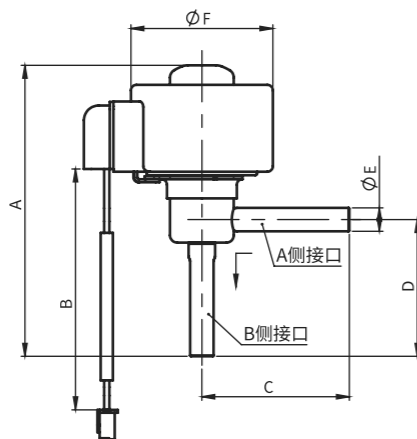
1. Gas cooler outlet temperature $T_c=22^\circ\text{C}$;
2. Gas cooler outlet pressure $P_c=10\text{MPa}$;
3. Evaporating Temperature $T_e=6^\circ\text{C}$;
4. Superheating $\Delta T_{sh}=0\text{K}$

The above specifications can be supplied in bulk and customized upon request.

Coil Parameters

Model	HEVX07-130	HEVX07-383
Full Stroke	500 pulses	
Opening Pulse	32±20(except EEV without shut off function)	
Nominal Voltage	DC 12V±10%, rectangular wave	
Actuating Mode	4-phase 8-step permanent magnet stepper motor	
Excitation Mode	1 ~ 2 phase excitation, monopole actuation	
Excitation Rate	30 ~ 90 PPS	
Insulation Class	E	
Resistance	46±3.7 Ω (20°C)	
Current	260mA/phase (20°C)	
Protection Class	IP54	
Wire Number	6	5
Code No.	/	/

Dimensions



Model	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]
HEV1.0~2.0	83	400/900	40	40	6.35	38.5
HEV2.4	114	400/900	55.5	59	7.94	38.5
HEV3.0~4.0	123.5	400/900	66	70	12.7	38.5

Note: Valve dimensions can be customized upon request.

CO₂ Solenoid Valve HSV Series

Application

By switching the electromagnetic coil to cut off or activate the refrigerant flow, RDFA series solenoid valves are designed for operating in liquid, suction and hot gas lines of CO₂ systems, such as HP water heater, freezing and refrigerating systems.



Features

- Material promotion, longer service life, excellent corrosion resistance;
- Performance Optimization, can work under high temperature condition and in a variety of refrigerants;
- Compact structure and shape;

Technical Data

Applicable Medium: R744 (CO₂) + PAG oil

Relative Humidity: 95%

Medium Temperature: -40°C~+130°C

Ambient Temperature: -30°C~+60°C

Max. Operating Pressure: 15.0 MPa

Internal Leakage: ≤100mL/min

NC (normally closed), angleway, uni-directional flow

Life Cycle: ≥100,000

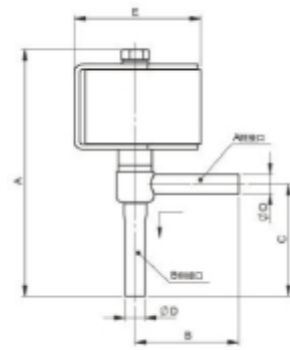
Specification

Model	Orifice Φ [mm]	Min. OPD [MPa]	MOPD [MPa]	Max. Operating Pressure [MPa]	Kv [m ³ /h]	Connection [mm]	Code No.
HSV1.0A	1.0	0	10	15	0.024	6.35	99000000736
HSV1.2A	1.2				0.033		99000000760
HSV4A	4	0.27			99000001054		
HSV6A	6	0.47			7.94	99000001234	
HSV8A	8	0.86			9.52	99000000780	

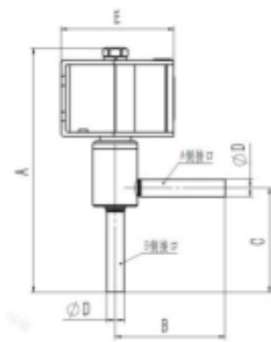
Coil

Model	Nominal Voltage [V]	Voltage range	Frequency [Hz]	Power [W]	Insulation Class	Protection Class	Connection Type	Code No.
DXQ-620	AC 220/240	85% - 110%	50/60	7/5	B	IP67	wire	241509062001
FDFX01-1051	AC 220/240	85% - 110%	50/60	8.5/6.5	/	IP65	wire	321005055402

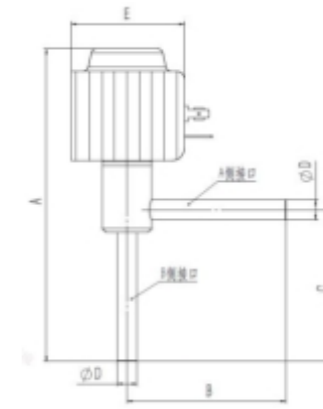
Dimensions



Model	A	B	C	D	E
	[mm]	[mm]	[mm]	[mm]	[mm]
HSV1.0A / 1.2A	80	35	36	6.35	41



Model	A	B	C	D	E
	[mm]	[mm]	[mm]	[mm]	[mm]
HSV4A	88	40	38	6.35	41



Model	A	B	C	D	E
	[mm]	[mm]	[mm]	[mm]	[mm]
HSV6A	127	64	61	7.97	46
HSV8A	127	64	61	9.52	46

Note: Valve dimensions can be customized upon request.

CO₂ Check Valve HCV Series

Application

The main function of HCV check valve is to ensure refrigerant flowing in correct direction, and to guarantee trans-critical system operating under high pressure level without any malfunction.



Features

- Stainless steel shell ensures to operate reliably under high pressure level;
- Built-in sliding piston can open under small differential pressure;
- Better tightness thanks to the new soft sealing structure
- Beautiful and compact appearance.

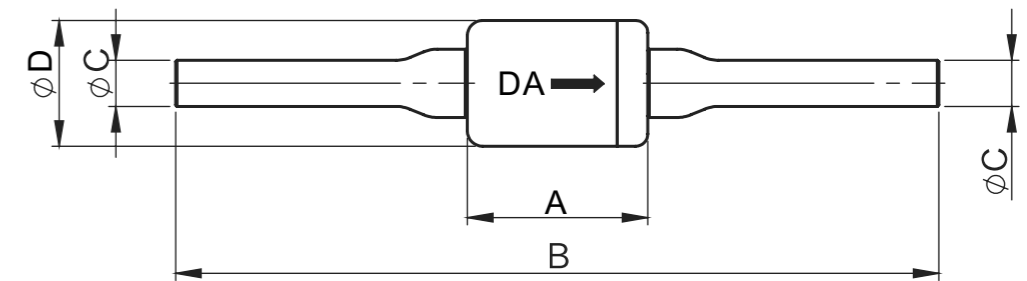
Technical Data

Applicable Medium: R744 (CO₂) + PAG oil
 Relative Humidity: 100%
 Medium Temperature: -40°C~+120°C
 Ambient Temperature: -40°C~+70°C
 Max. Operating Pressure: 14.0 MPa
 Internal Leakage: ≤100mL/min
 Straightway
 Life Cycle: ≥100,000

Specification

Model	Orifice Φ [mm]	Min. OPD [MPa]	Max. Operating Pressure [MPa]	MOPD [MPa]	Burst Pressure [MPa]	Kv [m ³ /h]	Connection [mm]	Code No.
HCV 6	4.0	0.04	14	10	42	0.40	6.35	990000000803
HCV 8	5.5					0.66	7.94	990000000804
HCV 10	7.0					1.04	9.52	990000000805

Dimensions



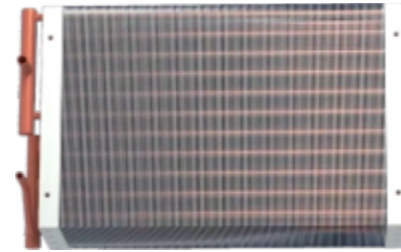
Model	A	B	C	D
	[mm]	[mm]	[mm]	[mm]
HCV 6	25	105	6.35	17.3
HCV 8			7.94	
HCV 10			9.52	18.4

Note: Valve dimensions can be customized upon request.

CO₂ Tube Fin Heat Exchanger

Application

Newly developed air-cooled fin-tube heat exchanger is specially designed for application in refrigeration and heat pump systems of CO₂, which could work either in heating or cooling mode. Inner-grooved tubes of diameter Φ 5mm, Φ 7mm as well as Φ 9.52mm are highlights of this innovated product, which are mainly for residential and light commercial units respectively.



Features

- Φ 5mm, Φ 7mm and Φ 9.52mm inner micro-grooved copper tubes specially for CO₂ application;
- Diversity of fin patterns meets various requirements (for details refer to mould information of tube-fin heat exchanger)
- Owing to the small tube size, miniaturization of heat exchanger construction can be achieved, which gives rise to a significant reduction of refrigerant charge as well as material saving;
- High pressure strength.
- Hydrophilic coating and the best drainage performance.

Technical Data

Applicable Medium: R744 (CO₂) + PAG oil

Relative Humidity: 95%

Medium Temperature: -30°C~+120°C

Ambient Temperature: -30°C~+70°C

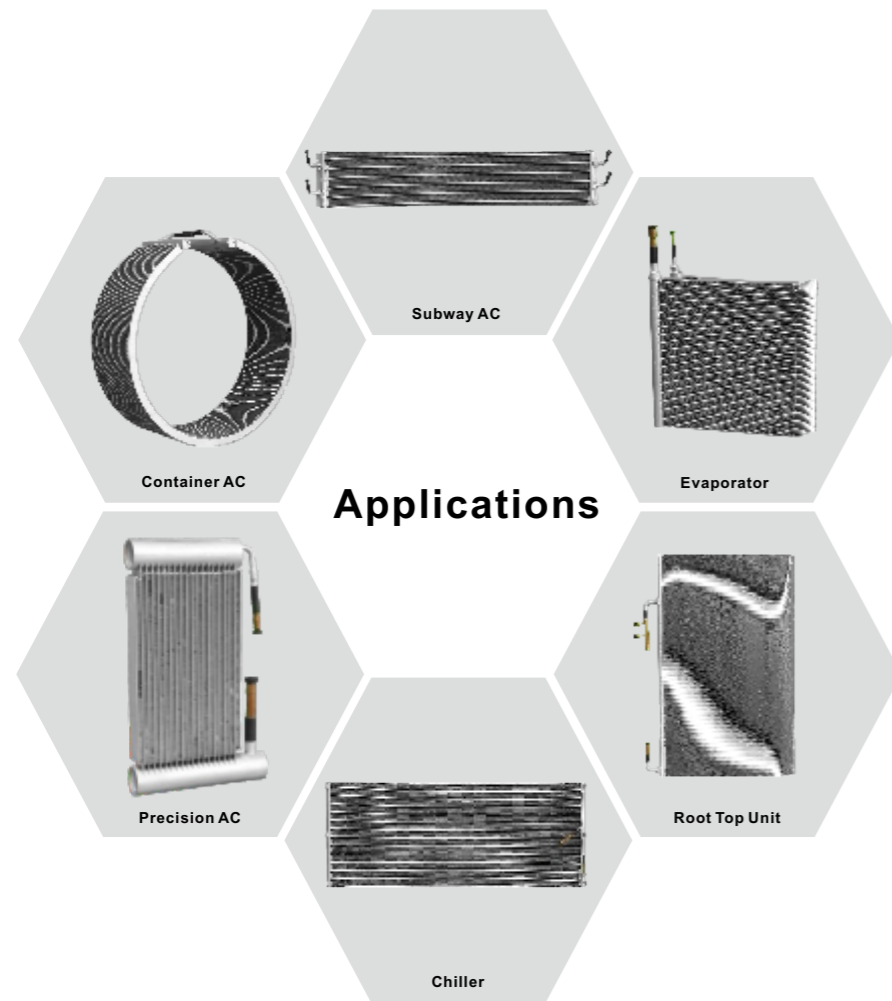
Max. Operating Pressure: \leq 12 MPa

Tube & Fin Heat Exchanger



Item No.	Tube Diameter [mm]	Tube Vertical Spacing [mm]	Tube Horizontal Spacing [mm]	Fin Pattern	Fin Pitch
1	Φ 5	19.05	16.5	Sine Corrugated, Corrugated, Flat, Louver	1.2 ~ 3.5
2	Φ 5	19.5	11.6	Flat, Sine Corrugated, Corrugated, Lanced, Louver	1.2 ~ 2.2
3	Φ 7	21	12.7	Lanced, Louver, Flat	1.2 ~ 2.2
4	Φ 7	21	18.2	Louver, Corrugated, Flat	1.2 ~ 3.0
5	Φ 7	25	21.65	Corrugated, Louver, Flat	1.2 ~ 3.0
6	Φ 7	19.05	16.5	Corrugated, Flat, Lanced, 60° Inclined Cut	1.3 ~ 4.0
7	Φ 7	25	12.5	Corrugated, Flat, Louver, 45° Inclined Cut	1.2 ~ 3.5
8	Φ 7.94	22	19.05	Sine Corrugated, Corrugated, Flat, Louver	1.2 ~ 4.2
9	Φ 7.94	25.4	12	Corrugated, Flat, 43° Inclined Cut	1.5 ~ 3.8
10	Φ 7.94	25.4	15.88	Sine Corrugated, Corrugated, Louver, Lanced, Flat	1.2 ~ 4.0
11	Φ 9.52	25	12.5	Corrugated, Flat, Louver	1.5 ~ 3.0
12	Φ 9.52	25	21.65	Corrugated, Louver, Flat	1.2 ~ 3.5
13	Φ 9.52	25	21.65	Sine Corrugated, Corrugated, Flat, 60° Inclined Cut	3.0 ~ 5.8
14	Φ 9.52	25	25	Louver, Corrugated, Flat	1.5 ~ 4.5
15	Φ 9.52	25.4	15.88	Sine Corrugated, Corrugated, Flat, Louver	1.2 ~ 4.0
16	Φ 9.52	25.4	22	Corrugated, Louver, Flat	1.2 ~ 2.5
17	Φ 9.52	25.4	22	Corrugated, Louver, Flat	1.2 ~ 3.0
18	Φ 9.52	25.4	22	Sine Corrugated, Corrugated, Flat, 60° Inclined Cut	3.0 ~ 5.8
19	Φ 9.52	25.4	22	Corrugated, Flat (could be semicircle at edge)	3.0 ~ 6.5
20	Φ 9.52	31.75	27.5	Corrugated, Flat (could be semicircle at 3rd and 5th row)	3.5 ~ 6.5
21	Φ 9.52	31.75	27.5	Louver, Sine Corrugated, Corrugated, Flat	1.2 ~ 4.2
22	Φ 9.52	30	26	Louver, Sine Corrugated, Corrugated, Flat	1.2 ~ 4.5
23	Φ 12	30	26	Louver, Sine Corrugated, Corrugated, Flat	1.2 ~ 4.5
24	Φ 12.7	31.75	27.5	Sine Corrugated, Corrugated, Flat	2.2 ~ 4.5
25	Φ 12.7	31.75	27.5	Sine Corrugated, Corrugated, Flat	5.0 ~ 8.3
26	Φ 12.7	37.5	32.45	Corrugated, Louver, Flat	1.3 ~ 4.5
27	Φ 12.7	38	33	Sine Corrugated	4.5 ~ 9.0
28	Φ 15.88	38	33	Corrugated, Flat	2.0 ~ 4.0
29	Φ 15.88	38	33	Sine Corrugated, Corrugated, Flat	4.5 ~ 9.0
30	Φ 15.88	52	45	Sine Corrugated	4.5 ~ 9.0

Micro-Channel Heat Exchanger



Mould Information

Header OD × Thickness [mm]	Tube Width × Height [mm]	Fin Height [mm]	Pitch [mm]	Approvals
16 × 1.2	12 × 1.2	6.5	1.0, 1.1, 1.2, 1.3	PED
	12 × 1.4	8	1.1, 1.2, 1.3	-
16 × 1.8	25.4 × 1.3	Heat Pump Water Heater (w/o fins)	-	PED
17.5 × 1.2	13.85 × 1.2	7.86	1.0, 1.1, 1.2, 1.3	-
	13.85 × 1.9			-
	16 × 1.3	6.5	1.0, 1.1, 1.2, 1.3	PED
	16 × 1.3	8.08	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	PED
20 × 1.5	16 × 1.3	11.4	1.1, 1.2, 1.3	PED
	16 × 1.4	8	1.1, 1.2, 1.3, 1.4, 1.5, 1.6	PED
	16 × 1.8	6.82	1.1, 1.2, 1.3	PED
	16 × 1.8	8	1.1, 1.2, 1.3, 1.4	PED
	16 × 2.0	8	1.1, 1.2, 1.3, 1.4, 1.5, 1.6	-
20 × 2.05	25.4 × 2.0	Heat Pump Water Heater (w/o fins)	-	PED
23 × 1.7	18 × 1.3	11.4	1.1, 1.2, 1.3	PED
25 × 1.5	20 × 2.0	8.1	1.1, 1.2, 1.3, 1.5, 1.6, 1.7	PED
				PED
26 × 1.9	16 × 1.3	8.08	1.1, 1.2, 1.3	PED
	16 × 1.3	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	PED
	20.6 × 1.3	8.1	1.1, 1.2, 1.3	PED
32 × 2.3	25.4 × 1.3	6.5	1.2, 1.3, 1.4	PED
				PED
32 × 2.5	18 × 1.3	7.62	1.1, 1.2, 1.3	PED
	20.6 × 1.3	8.1	1.7, 1.8, 1.9	PED
	25.4 × 1.3	7.62	1.1, 1.2, 1.3	PED
	25.4 × 1.3	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	PED
	25.4 × 2.0	8.08	1.1, 1.2, 1.25	PED
	25.4 × 2.0	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	PED
38 × 2.2	25.4 × 1.3	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	PED
	32 × 1.3	6.5	1.2, 1.3, 1.4	PED
	32 × 1.3	8.1	1.2, 1.3, 1.4	PED
38 × 2.5	25.4 × 2.0	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	PED
	32 × 2.0	8.1	1.2, 1.3, 1.4	PED
43 × 2.85	35.8 × 1.5	7.4	1.1, 1.2, 1.3	-
43.5 × 2.85	32 × 1.3	8.1	1.2, 1.3, 1.4	PED
45 × 2.85	38 × 1.8	9	1.2, 1.3	PED
50 × 2.5	35.8 × 2.0	7.4	1.1, 1.2, 1.3	-

Accumulator QF Series

Application

Accumulator is a crucial component located between the compressor and evaporator in a refrigeration system. It separates the refrigerant into gas and liquid phases, stores the separated liquid, filters and returns lubricating oil to the compressor, and prevents liquid refrigerant from entering the compressor — thereby protecting it from liquid slugging.



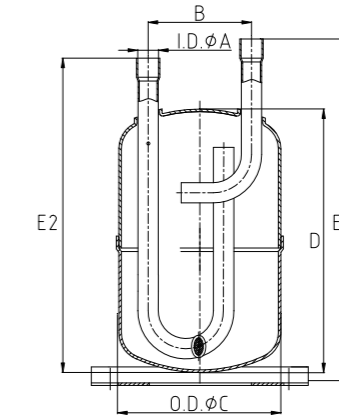
Features

- Made of high-quality steel plates, steel pipes, and copper tubes
- Gas shielded welding ensures excellent welding performance
- Durable powder coating, withstanding over 500 hours of neutral salt spray testing

Technical Data

- Applicable Refrigerants: R410A, R32, R454B, R134a, R404A, R507, R513A, R290, R407C, R22, R1234yf, R1234ze
- Medium Temperature: -30°C ~ +120°C
- Ambient Temperature: -20°C ~ +55°C
- Working Pressure: 2.2 MPa ~ 4.5 MPa

Ordering & Dimensions



Item No.	Drawing No.	V	Ps	φC	Inlet φ	Outlet φ A	B	D	E1	Installation Method
		[L]	[Mpa]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
1	QF-004051-Y001-00	0.4	3	51	12.7	12.7	-	258	363	Vertical
2	QF-004051-Y002-00	0.4	3	51	12.7	12.7	-	258	363	Vertical
3	QF-006076-S001-00	0.56	2.5	76	15.88	19	43.2	150	200	Screw
4	QF-006076-S003-00	0.63	2.5	76	12.7	16	43.2	150	200	Screw
5	QFQ-FSM077-L001-00	0.7	3.2	77	12.7	9.52	40	160	200	w/o Plate
6	QF-009076-S001-00	0.9	3	76	12	12	26.9	235	305	Hanger
7	QF-009076-S002-00	0.9	2.5	76	12.7	12.7	43.2	228.7	279	Screw
8	QF-011076-S001-00	1.05	2.5	76	15.88	19	43.2	250	300	Screw
9	QF-012076-S002-00	1.15	2.5	76	15.88	19	43.2	275.2	326	Screw
10	QF-014076-S004-00	1.42	2.5	76	19	15.88	43.2	340	390	Screw
11	QF-015089-S005-00 ^[1]	1.5	3	89	16	16	44.4	280	388	Hanger
12	QF-017076-S001-00	1.7	4.2	76	10	10	Aligned Side	128	424	w/o Plate
13	QF-018089-Y001-00	1.8	2.1	89	15.88	15.88	-	305	413	Vertical
14	QF-019076-S001-00	1.9	3	76	19	19	-	515	683	Vertical
15	QF-023102-S001-00	2.3	2.5	102	19	19	43.2	319.7	370	Screw
16	QF-027102-S001-00 ^[1]	2.7	3	101.6	16	16	43	380	459.5	Hanger
17	QF-030127-S002-00 ^[1]	3	2.7	127	22	22	65	300	397	Vertical
18	QF-040127-S012-00 ^[1]	4	2.7	127	22	22	80	360	434	Vertical
19	QF-030089-S003-00 ^[1]	4	3	89	16	16	44.4	565.6	653	Vertical
20	QF-040127-S007-00 ^[1]	4.1	3.2	127	19	19	43.2	344.8	397.6	Screw
21	QF-060127-S004-00 ^[1]	6	3	127	22	22	65	500	593	Vertical
22	QF-070165-S001-00 ^[1]	7	3	165	22	22	90	382	449	Vertical
23	QF-100219-S003-00 ^[2]	10	3.8	219	35	35	94	362	456.5	Vertical
24	QF-120230-S001-00 ^[1]	12	2.4	230	28	28	120	332	384	Vertical
25	QF-140219-S002-00 ^[1]	14	3	219	22	22	90	435	518	Vertical
26	QF-140219-S005-00 ^[2]	14	3	219	22	22	90	435	518	Vertical
27	QF-200219-S004-00 ^[1]	20	3	219	28	28	90	600	675	Vertical
28	QF-200219-S006-00 ^[2]	20	3	219	22	22	90	600	675	Vertical
29	QF-270219-S001-00 ^[1]	27	3	219	35	25	-	795	890	Vertical

Note: [1] PED certified. [2] ASME certified.

Oil Separator YF Series

Application

The main function of the oil separator is to separate the compressor lubricating oil from the oil-gas mixture and further remove oil particles from the compressed gas. It separates the lubricating oil from the refrigerant, allowing the oil to return to the compressor crankcase, ensuring the compressor remains properly lubricated.



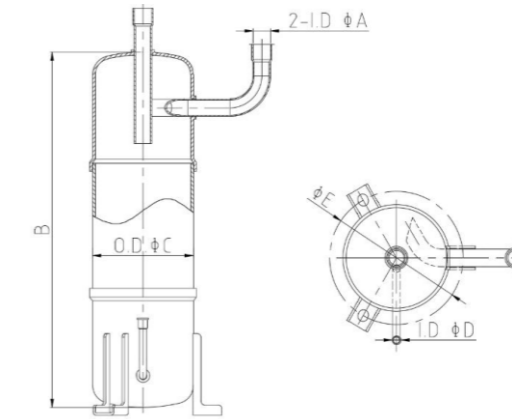
Features

- Made of high-quality steel plates, steel pipes, and copper tubes
- Gas shielded welding ensures excellent welding performance
- Durable powder coating, withstanding over 500 hours of neutral salt spray testing

Technical Data

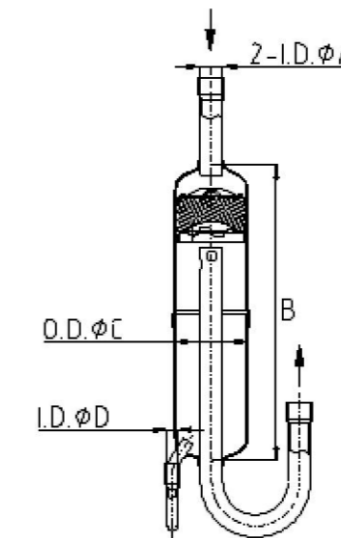
- Applicable Refrigerants: R410A, R32, R454B, R134a, R404A, R507, R513A, R290, R407C, R22, R1234yf, R1234ze
- Medium Temperature: -30°C ~ +120°C
- Ambient Temperature: -20°C ~ +55°C
- Working Pressure: 2.2 MPa ~ 4.5 MPa

Ordering & Dimensions



Model	V [L]	φA [mm]	B [mm]	φC [mm]	Installation Dimensions	
					φD [mm]	φE [mm]
YF-019102-S002-00 ^[1]	1.9	16.2	280	101.6	9.7	140
YF-050127-S004-00 ^[1]	5	22.15	447	127	9.7	168

Note: ^[1] PED certified.



Model	V [L]	φA [mm]	B [mm]	φC [mm]	φD [mm]
QFQ-MD057-L002-00	0.45	12.85	218	58	6.15
YF-011080-L001-00	1.0	12.85	265	80	6.15

Liquid Receiver CY Series

Application

During the operation of a refrigeration system, changes in operating conditions or system adjustments may require the refrigerant to return to the liquid receiver. This helps stabilize the circulating amount of refrigerant within the system and ensures the refrigeration unit operates normally. In the event of a failure in part of the system that requires disassembly or repair, the refrigerant can be collected into the receiver through proper procedures to prevent excessive refrigerant loss and waste.



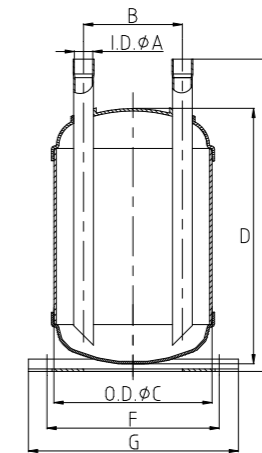
Features

- Made of high-quality steel plates, steel pipes, and copper tubes
- Gas shielded welding ensures excellent welding performance
- Durable powder coating, withstanding over 500 hours of neutral salt spray testing

Technical Data

- Applicable Refrigerants: R410A, R32, R454B, R134a, R404A, R507, R513A, R290, R407C, R22, R1234yf, R1234ze
- Medium Temperature: -30°C ~ +120°C
- Ambient Temperature: -20°C ~ +55°C
- Working Pressure: 2.2 MPa ~ 4.5 MPa

Ordering & Dimensions



Item No.	Drawing No.	V	Ps	φC	Inlet φ	Outlet φ A	B	D	E	Installation Method
		[L]	[Mpa]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
1	CY-003076-S001-00	0.3	5	76	10	-	-	101	131	Vertical
2	CY-008102-S002-00	0.8	4.15	102	10	φ10	Aligned Side	128	158	w/o Plate
3	QFQ-AS102-S002-00	0.9	2.5	102	10	-	-	122	152	Screw
4	CY-010102-S001-00	1.0	2.5	102	10	-	-	153	183	Screw
5	CY-010102-S002-00	1.0	2.5	102	10	φ10*1	-	190	220	Screw
6	CY-013102-S002-00	1.3	2.5	102	10	φ10*1	-	190	220	Screw
7	CY-013102-S001-00	1.3	2.5	102	10	-	-	190	220	Screw
8	CY-014102-S001-00	1.4	4.5	102	9.52	9.52	70	216	317	Screw
9	CY-015080-S001-00 ^[1]	1.5	3	80	9.52	9.52	40	345	386	Vertical
10	CY-015080-S004-00 ^[1]	1.5	3.3	80	9.52	9.52	40	348	386	Vertical
11	CY-017080-S001-00 ^[1]	1.7	3	80	9.52	9.52	40	385	426	Vertical
12	CY-017102-S001-00 ^[1]	1.7	4.5	102	9.52	9.52	70	261	317	Screw
13	CY-025080-S001-00 ^[1]	2.5	3.3	80	9.52	9.52	40	565	603	Vertical
14	CY-025080-S005-00 ^[1]	2.5	3.3	80	9.52	9.52	40	565	603	Vertical
15	CY-035152-S001-00 ^[1]	3.5	4.5	152	9.52	9.52	70	214	331.5	Screw
16	QFQ-KL159-S003-00 ^[1]	6	4.2	159	12.8	12.8	-	388	485	Vertical
17	CY-070165-S004-00 ^[1]	7	4.5	165	16	16	80	380	447	Vertical
18	CY-160219-S002-00 ^[2]	16	4.1	219	22	22	-	457	469	Vertical
19	CY-240273-S002-00 ^[2]	24	4.1	273	22	22	-	457	462	Vertical

Note: ^[1] PED certified.
^[2] ASME certified.