INTELLIGENT FLOW CONTROL SOLUTIONS IN HVAC&R

Standard Catalogue
for Europe

2020-03Edition

DunAn

Content

DUN AN

DSF Series

4-Way Reversing Valve

DSF Series & DSF(S) Series

Application

The DSF series 4-way reversing valve is applicable to all kinds of heat pump systems. It changes the flow path of refrigerants 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 according to PED, LVD, IECEx and UL.

Technical Data

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

Relative Humidity: ≤95% RH

Medium Temperature: -30°C~+135°C

Ambient Temperature: -30°C~+55°C

Max. Operating Pressure: 4.5 MPa

DUN AN
DSF Series

4-Way Reversing Valve

Brass DSF Series

Model	Part Number	Port	K_v	Connection		Operating Pressure Difference	
				D	E, S, C	Max.	Min.
		[mm]	[m^3/h]	[in.]	[in.]	[MPa]	[MPa]
DSF-4	240105001600	8	1.7	5/16	3/8	3.5	0.25
DSF-9	240107001500	11.1	3.0	3/8	1/2	3.5	0.3
DSF-9D-2102	240109017300	11.1	3.0	3/8	5/8	3.5	0.3
DSF-9H-2105	240109017200	11.1	3.0	3/8	1/2	3.5	0.3
DSF-11B-2104	240111006600	11.5	3.6	1/2	5/8	3.5	0.3
DSF-11E-2101	240111006700	11.5	3.6	3/8	5/8	3.5	0.3
DSF-20-2200	240120004600	15.5	7.2	1/2	3/4	3.5	0.3
DSF-20-2211	240120011500	17.2	8.0	1/2	3/4	3.5	0.3
DSF-34-2215	240134007800	20.9	12.3	3/4	7/8	3.5	0.3
DSF-34-2216	240134008300	20.9	12.3	7/8	9/8	3.5	0.3
DSF-38-2200	240138000300	23	13.4	7/8	9/8	3.5	0.3
DSF-50-2200	240150000100	24	13.9	7/8	9/8	3.5	0.3
DSF-70-2201	240170000100	26	28.7	1	5/4	3.5	0.3
DSF-105-2201	240110000100	34.5	39.1	5/4	3/2	3.5	0.3
DSF-140-2201	240114000100	41	58.5	3/2	7/4	3.5	0.3
DSF-180-2201	240118000200	46.4	70.4	3/2	17/8	3.5	0.3
DSF-210-2201	240121000100	50	80.2	2	21/8	3.5	0.3

4-Way Reversing Valve

DUN AN
DSF Series

Stainless Steel DSF(S) Series

Model	Part Number	Port	K_v	Connection		Operating Pressure Difference	
				D	E, S, C	Max.	Min.
		[mm]	[m³/h]	[in.]	[in.]	[MPa]	[MPa]
DSF(S)-4G-2170	240104005200	8	1.7	5/16	3/8	3.5	0.25
DSF(S)-9-2101C	240109014100	11.1	3.0	3/8	1/2	3.5	0.3
DSF(S)-9H-2101C	240109017500	11.1	3.0	3/8	1/2	3.5	0.3
DSF(S)-14-2200C	240115000500	13.5	6.5	1/2	5/8	3.5	0.3
DSF(S)-20-2200C	240120007700	15.5	7.2	1/2	3/4	3.5	0.3
DSF(S)-34-2200C	240134005300	19.2	11.3	3/4	7/8	3.5	0.3
DSF(S)-50-2200C	240150002000	24	13.9	7/8	9/8	3.5	0.3

Coil

Model	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	Spade	500	AC	200	50/60	≤ 7.5		
DXQ-1489[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		

Note:
[1] Bi-Stable type
[2] Application under potentially explosive conditions approved

DUN AN

DSF Series

4-Way Reversing Valve

Capacity Table

Model	Capacity [kW]																							
	Pressure Drop △ P [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	
	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2
DSF-4	2.5	3.5	2.3	3.2	2.6	3.6	2.2	3.2	3.3	4.7	3.0	4.3	3.9	5.5	3.6	5.0	4.9	6.9	4.6	6.5	3.6	5.1	3.3	4.7
DSF-9	5.6	7.9	5.2	7.3	5.8	8.2	5.1	7.2	7.5	10.6	6.7	9.5	8.8	12.5	8.0	11.3	11.1	15.7	10.4	14.8	8.2	11.6	7.5	10.6
DSF-11	6.8	9.6	6.3	8.9	7.1	10.0	6.2	8.8	9.1	12.9	8.2	11.5	10.8	15.2	9.8	13.8	13.6	19.2	12.7	18.0	10.0	14.1	9.2	13.0
DSF-20-2200	12.5	17.7	11.6	16.5	12.9	18.3	11.3	16.0	16.8	23.7	15.0	21.3	19.8	28.0	18.0	25.4	25.0	35.3	23.4	33.1	18.4	26.0	16.9	23.9
DSF-20-2211	15.4	21.8	14.3	20.3	15.9	22.5	13.9	19.7	20.6	29.2	18.5	26.2	24.4	34.5	22.1	31.3	30.8	43.5	28.8	40.8	22.6	32.0	20.8	29.4
DSF-34	22.5	31.8	20.9	29.6	23.5	33.2	20.5	29.0	30.1	42.6	27.0	38.2	35.6	50.3	32.3	45.6	44.9	63.5	42.1	59.5	33.0	46.6	30.4	43.0
DSF-38	23.7	33.5	22.0	31.1	24.7	34.9	21.6	30.5	31.7	44.8	28.4	40.2	37.4	52.9	33.9	48.0	47.2	66.8	44.2	62.6	34.7	49.0	31.9	45.2
DSF-50	28.8	40.8	26.8	37.9	30.1	42.6	26.3	37.2	38.6	54.6	34.6	49.0	45.6	64.5	41.4	58.5	57.5	81.4	53.9	76.3	42.3	59.8	38.9	55.1
DSF-70	43.1	61.0	40.4	57.2	45.0	63.6	39.7	56.1	57.7	81.6	53.2	74.8	68.2	96.4	62.4	88.2	86.0	121.7	81.3	115.0	63.2	89.4	58.7	83.0
DSF-105	64.5	91.2	60.0	84.8	67.3	95.2	58.9	83.3	86.3	122.1	77.4	109.5	102.0	144.2	92.5	130.8	128.7	182.0	120.6	170.6	94.5	133.7	87.1	123.1
DSF-140	87.7	124.0	81.5	115.2	91.4	129.3	80.0	113.1	117.3	165.8	105.2	148.7	138.6	196.0	125.7	177.8	174.8	247.3	163.9	231.8	128.5	181.7	118.3	167.3
DSF-180	111.3	157.4	103.4	146.2	116.0	164.1	101.5	143.6	148.9	210.5	133.5	188.8	206.1	248.7	159.6	225.6	221.9	313.9	208.0	294.2	163.1	230.6	150.2	212.4
DSF-210	130.4	184.4	121.2	171.3	136.0	192.3	119.0	168.2	174.4	246.6	159.0	224.2	233.6	291.4	186.9	264.4	260.0	367.7	243.7	344.7	191.0	270.2	175.9	248.8

Note: [1] Cond.1: T_C=38℃, T_E=5℃, △T_{sh}=5K, △T_{sc}=0K; [2] Cond.2: T_C=54.4℃, T_E=7.2℃, △T_{sh}=5K , △T_{sc}=5K

Model	Capacity [kW]																							
	Pressure Drop △ P [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	
	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2
DSF(S)-4	2.5	3.5	2.3	3.2	2.6	3.6	2.2	3.2	3.3	4.7	3.0	4.3	3.9	5.5	3.6	5.0	4.9	6.9	4.6	6.5	3.6	5.1	3.3	4.7
DSF(S)-9	5.6	7.9	5.2	7.3	5.8	8.2	5.1	7.2	7.5	10.6	6.7	9.5	8.8	12.5	8.0	11.3	11.1	15.7	10.4	14.8	8.2	11.6	7.5	10.6
DSF(S)-14	9.1	12.9	8.5	12.0	9.5	13.5	8.3	11.8	12.2	17.3	11.0	15.5	14.5	20.4	13.1	18.5	18.2	25.8	17.1	24.2	13.4	19.0	12.3	17.5
DSF(S)-20	12.5	17.7	11.6	16.5	12.9	18.3	11.3	16.0	16.8	23.7	15.0	21.3	19.8	28.0	18.0	25.4	25.0	35.3	23.4	33.1	18.4	26.0	16.9	23.9
DSF(S)-34	12.5	17.7	11.6	16.5	12.9	18.3	11.3	16.0	16.8	23.7	15.0	21.3	19.8	28.0	18.0	25.4	25.0	35.3	23.4	33.1	18.4	26.0	16.9	23.9
DSF(S)-50	12.5	17.7	11.6	16.5	12.9	18.3	11.3	16.0	16.8	23.7	15.0	21.3	19.8	28.0	18.0	25.4	25.0	35.3	23.4	33.1	18.4	26.0	16.9	23.9

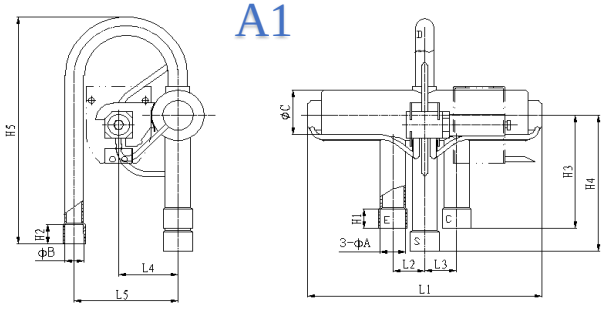
Note: [1] Cond.1: T_C=38℃, T_E=5℃, △T_{sh}=5K, △T_{sc}=0K; [2] Cond.2: T_C=54.4℃, T_E=7.2℃, △T_{sh}=5K, △T_{sc}=5K

4-Way Reversing Valve

Ordering and Dimensions

DSF Series

A1



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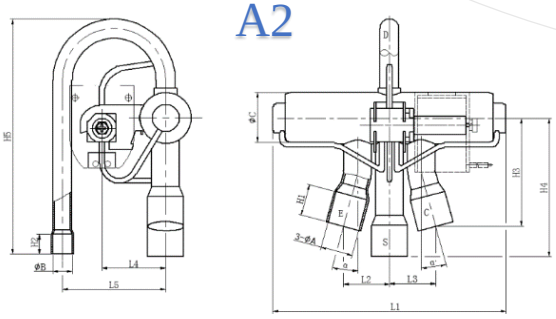

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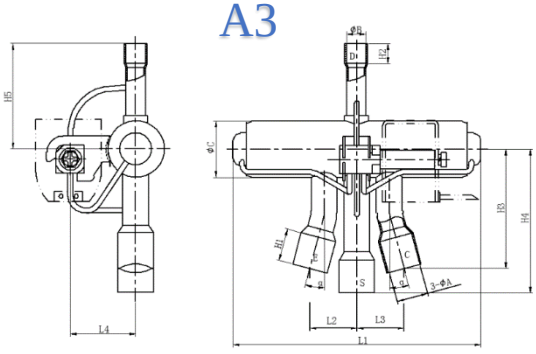

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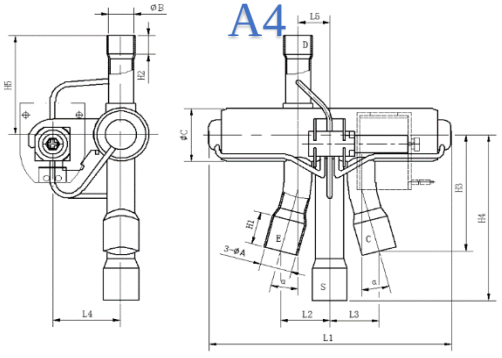

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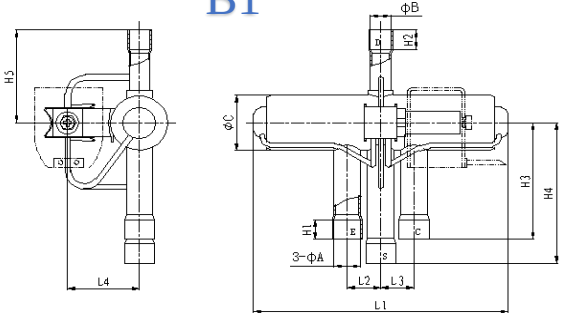

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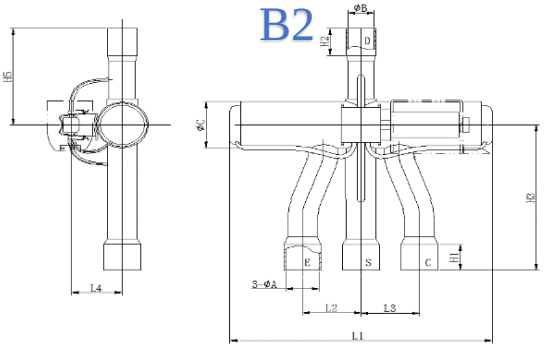

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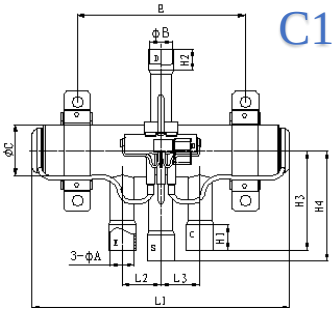

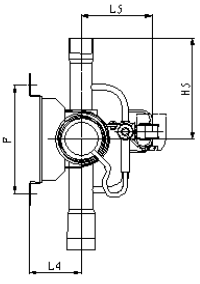

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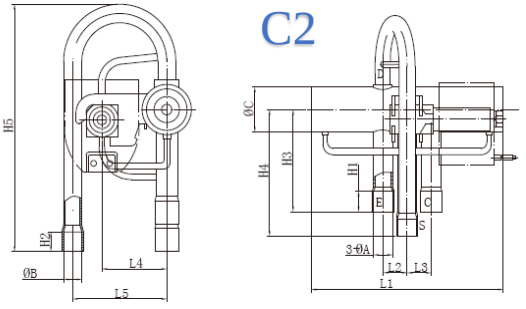


DUN AN
DSF Series

4-Way Reversing Valve

DSF Series

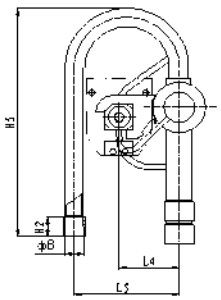
Model	Style	A	B	C	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	α
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[°]
DSF-4	A1	9.6	8.1	22	96	12	12	29	42	10	8.5	50	62	104	-
DSF-9	A1	12.8	9.6	28	120	16	16	32	52	10	10	59	71	119	-
DSF-9D-2102	A3	16.1	9.6	26.3	117	23.5	23.5	32		16	10	57	72	52	15
DSF-9H-2105	B1	12.8	9.6	28	120	16	16	32	-	10	10	59	71	49	-
DSF-11B-2104	A4	16.1	12.8	28	120	25	25	32	-	17	10	62	87	52	15
DSF-11E-2101	A2	16.1	9.6	26.3	117	23.5	23.5	32	52	16	10	57	72	119	15
DSF-20-2200	B1	19.2	12.8	36	187	29	29	36	-	19	13	83	95	67	-
DSF-20-2211	B1	19.2	12.8	35.6	186	29	29	36	-	19	13	83	95	67	-
DSF-34-2215	B1	22.3	19.2	45	224	33.5	33.5	41.5	-	22	19	86	98.6	82	-
DSF-34-2216	B1	22.3	19.2	45	224	33.5	33.5	41.5	-	22	19	86	98.6	82	
DSF-38-2200	B2	28.6	22.5	45	224	50	50	40	-	25	25	140	/	93	17
DSF-50-2200	B1	28.6	22.5	45	245	37	37	40	-	30	25	94	107	93	

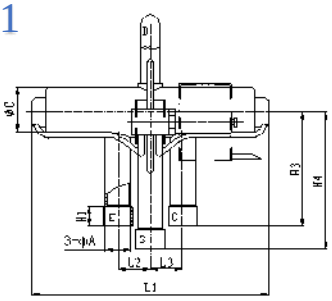
Model	Style	A	B	C	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	E	F
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF-70-2201	C1	32	25.6	61	300	45	45	57	90	30	25	116	129	116.5	196	120
DSF-105-2201	C1	38.1	31.8	61	300	45	45	56	90	30	25	117	130	117	196	120
DSF-140-2201	C1	45	38.1	83.2	383	58	58	65	90.3	40	35	147.1	167.1	139.6	230	166
DSF-180-2201	C1	54.2	38.1	83.2	383	58	58	65	90.4	40	35	147	197	139.6	230	166
DSF-210-2201	C1	66.96	50	83.2	480	71.5	71.5	65	90.5	40	33	147.1	198.6	135.6	262	166

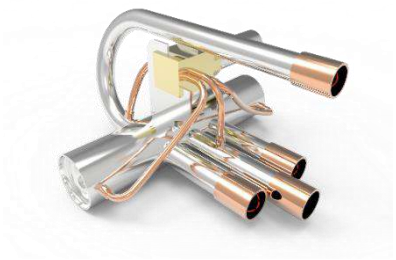
4-Way Reversing Valve

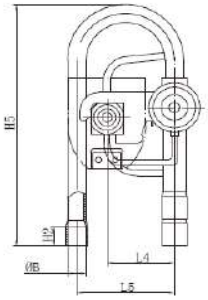
DSF(S) Series

A1









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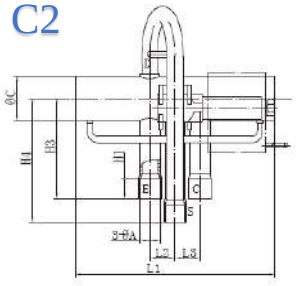

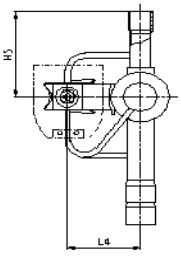

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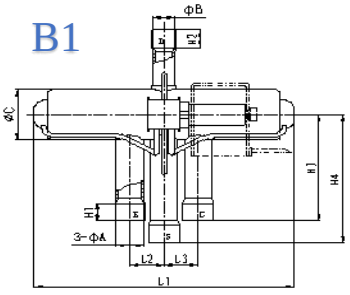


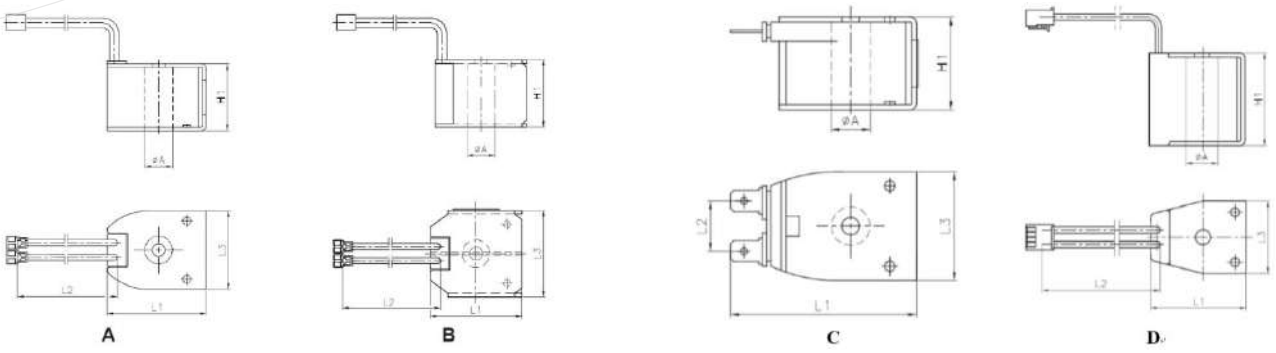
Model	style	A	B	C	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF(S)-4	A1/C2	9.6	8.1	20.6	96	12	12	29	42	10	8.5	50	62	102
DSF(S)-9	A1/C2	12.8	9.6	25	120	16	16	32.5	52	10	10	59	71	119
DSF(S)-9H	B1	12.8	9.6	25	120	16	16	32.5	52	10	10	59	71	119
DSF(S)-14	B1	16	12.8	34	132.5	20	20	36	-	19	13	83	95	67
DSF(S)-20	B1	19.2	12.8	34	174	29	29	36	-	19	13	83	95	67
DSF(S)-34	B1	22.3	19.2	42.4	224	33.5	33.5	41.5	-	22	13	86	98.6	82
DSF(S)-50	B1	22.3	19.2	42.4	224	33.5	33.5	41.5	-	22	13	86	98.6	82

DunAn

DSF(S) Series

4-Way Reversing Valve

Coil



Model	Style	A	L1	L2	L3	H2
		[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-1489	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

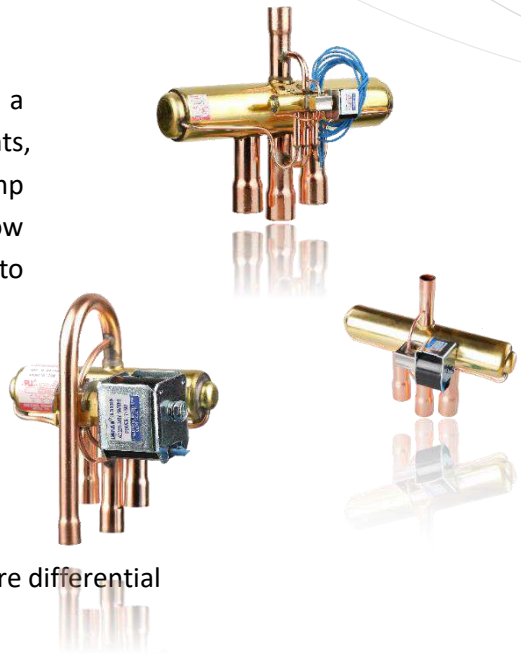
Note: The wire length can be customized according to customer's requirement

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 / R1234ze / R454C / R455A / R454A / R452B / R448 / R22
Relative Humidity: ≤95% RH
Medium Temperature: -30°C~+150°C
Ambient Temperature: -30°C~+55°C
Max. Operating Pressure: 4.9 MPa

DUN AN

DSF Series for HP & HT

4-Way Reversing Valve

Brass DSF Series for HT & HP applications

Model	Part Number	Port	K_v	Connection		Operating Pressure Difference		Ps
				D	E, S, C	Max.	Min.	
		[mm]	[m³/h]	[in.]	[in.]	[MPa]	[MPa]	[MPa]
DSF-4-2161	240005059500	8	1.7	5/16	3/8	3.1	0.25	4.9
DSF-9-2161	240007053700	11.1	3.0	3/8	1/2	3.1	0.3	4.9
DSF-9D-2161	240009100400	11.1	3.0	3/8	5/8	3.1	0.3	4.9
DSF-9H-2161	240009100500	11.1	3.0	3/8	1/2	3.1	0.3	4.9
DSF-11B-2161	240011044000	11.5	3.6	1/2	5/8	3.1	0.3	4.9
DSF-11E-2161	240011031900	11.5	3.6	3/8	5/8	3.1	0.3	4.9
DSF-20-2261	240020068600	15.5	7.2	1/2	3/4	3.1	0.3	4.9
DSF-20-2262	240020068700	15.5	7.2	1/2	7/8	3.1	0.3	4.9
DSF-20-2263	240020068800	17.2	8.0	1/2	3/4	3.1	0.3	4.9
DSF-34 -2261	240034040900	19.2	11.3	7/8	9/8	3.1	0.3	4.9
DSF-34-2262	240034041000	20.9	12.3	3/4	7/8	3.1	0.3	4.9
DSF-38-2261	240038006000	23	13.4	7/8	9/8	3.1	0.3	4.9
DSF-50-2261	240050011400	24	13.9	7/8	9/8	3.1	0.3	4.9
DSF-70-2601	240070009100	26	28.7	1	5/4	3.1	0.3	4.9
DSF-105-2601	240010005000	34.5	39.1	5/4	3/2	3.1	0.3	4.9
DSF-140-2601	240014002700	41	58.5	3/2	7/4	3.1	0.3	4.9
DSF-180-2601	240018002100	46.4	70.4	3/2	17/8	3.1	0.3	4.9
DSF-210-2601	240021001400	50	80.2	2	21/8	3.1	0.3	4.9

4-Way Reversing Valve

Coil

Model	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	Spade	500	AC	200	50/60	≤ 7.5		
DXQ-1489 [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		

Note:
[1] Bi-Stable type
[2] Application under potentially explosive conditions approved

DUN AN

DSF Series for HP & HT

4-Way Reversing Valve

Capacity Table

Model	Part Number	Nominal Cooling Capacity [kW]											
		R134a				R404A				R407C			
		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2	
		0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2
DSF-4-2161	240005059500	2.5	3.5	2.3	3.2	2.6	3.6	2.2	3.2	3.3	4.7	3.0	4.3
DSF-9-2161	240007053700	5.6	7.9	5.2	7.3	5.8	8.2	5.1	7.2	7.5	10.6	6.7	9.5
DSF-9D-2161	240009100400	5.6	7.9	5.2	7.3	5.8	8.2	5.1	7.2	7.5	10.6	6.7	9.5
DSF-9H-2161	240009100500	5.6	7.9	5.2	7.3	5.8	8.2	5.1	7.2	7.5	10.6	6.7	9.5
DSF-11B-2161	240011044000	6.8	9.6	6.3	8.9	7.1	10.0	6.2	8.8	9.1	12.9	8.2	11.5
DSF-11E-2161	240011031900	6.8	9.6	6.3	8.9	7.1	10.0	6.2	8.8	9.1	12.9	8.2	11.5
DSF-20-2261	240020068600	12.5	17.7	11.6	16.5	12.9	18.3	11.3	16.0	16.8	23.7	15.0	21.3
DSF-20-2262	240020068700	12.5	17.7	11.6	16.5	12.9	18.3	11.3	16.0	16.8	23.7	15.0	21.3
DSF-20-2263	240020068800	15.4	21.8	14.3	20.3	15.9	22.5	13.9	19.7	20.6	29.2	18.5	26.2
DSF-34-2261	240034040900	20.7	29.3	19.3	27.3	21.4	30.2	18.7	26.5	27.7	39.2	24.9	35.2
DSF-34-2262	240034041000	22.5	31.8	20.9	29.6	23.5	33.2	20.5	29.0	30.1	42.6	27.0	38.2
DSF-38-2261	240038006000	23.7	33.5	22.0	31.1	24.7	34.9	21.6	30.5	31.7	44.8	28.4	40.2
DSF-50-2261	240050011400	28.8	40.8	26.8	37.9	30.1	42.6	26.3	37.2	38.6	54.6	34.6	49.0
DSF-70-2601	240070009100	43.1	61.0	40.4	57.2	45.0	63.6	39.7	56.1	57.7	81.6	53.2	74.8
DSF-105-2601	240010005000	64.5	91.2	60.0	84.8	67.3	95.2	58.9	83.3	86.3	122.1	77.4	109.5
DSF-140-2601	240014002700	87.7	124.0	81.5	115.2	91.4	129.3	80.0	113.1	117.3	165.8	105.2	148.7
DSF-180-2601	240018002100	111.3	157.4	103.4	146.2	116.0	164.1	101.5	143.6	148.9	210.5	133.5	188.8
DSF-210-2601	240021001400	130.4	184.4	121.2	171.3	136.0	192.3	119.0	168.2	174.4	246.6	159.0	224.2

Note:

Condition 1： T_C=38℃, T_E=5℃, $\triangle T_{sc}$=0K, $\triangle T_{sh}$=5K ；

Condition 2： T_C=54.4℃, T_E=7.2℃, $\triangle T_{sc}$=5K, $\triangle T_{sh}$=5K；

4-Way Reversing Valve

Capacity Table

Model	Part Number	Nominal Cooling Capacity [kW]											
		R410A				R32				R290			
		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2	
		0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2
DSF-4-2161	240005059500	3.9	5.5	3.6	5.0	4.9	6.9	4.6	6.5	3.6	5.1	3.3	4.7
DSF-9-2161	240007053700	8.8	12.5	8.0	11.3	11.1	15.7	10.4	14.8	8.2	11.6	7.5	10.6
DSF-9D-2161	240009100400	8.8	12.5	8.0	11.3	11.1	15.7	10.4	14.8	8.2	11.6	7.5	10.6
DSF-9H-2161	240009100500	8.8	12.5	8.0	11.3	11.1	15.7	10.4	14.8	8.2	11.6	7.5	10.6
DSF-11B-2161	240011044000	10.8	15.2	9.8	13.8	13.6	19.2	12.7	18.0	10.0	14.1	9.2	13.0
DSF-11E-2161	240011031900	10.8	15.2	9.8	13.8	13.6	19.2	12.7	18.0	10.0	14.1	9.2	13.0
DSF-20-2261	240020068600	19.8	28.0	18.0	25.4	25.0	35.3	23.4	33.1	18.4	26.0	16.9	23.9
DSF-20-2262	240020068700	19.8	28.0	18.0	25.4	25.0	35.3	23.4	33.1	18.4	26.0	16.9	23.9
DSF-20-2263	240020068800	24.4	34.5	22.1	31.3	30.8	43.5	28.8	40.8	22.6	32.0	20.8	29.4
DSF-34-2261	240034040900	32.8	46.4	29.7	42.1	41.4	58.5	38.8	54.8	30.4	43.0	28.0	39.6
DSF-34-2262	240034041000	35.6	50.3	32.3	45.6	44.9	63.5	42.1	59.5	33.0	46.6	30.4	43.0
DSF-38-2261	240038006000	37.4	52.9	33.9	48.0	47.2	66.8	44.2	62.6	34.7	49.0	31.9	45.2
DSF-50-2261	240050011400	45.6	64.5	41.4	58.5	57.5	81.4	53.9	76.3	42.3	59.8	38.9	55.1
DSF-70-2601	240070009100	68.2	96.4	62.4	88.2	86.0	121.7	81.3	115.0	63.2	89.4	58.7	83.0
DSF-105-2601	240010005000	102.0	144.2	92.5	130.8	128.7	182.0	120.6	170.6	94.5	133.7	87.1	123.1
DSF-140-2601	240014002700	138.6	196.0	125.7	177.8	174.8	247.3	163.9	231.8	128.5	181.7	118.3	167.3
DSF-180-2601	240018002100	175.9	248.7	159.6	225.6	221.9	313.9	208.0	294.2	163.1	230.6	150.2	212.4
DSF-210-2601	240021001400	206.1	291.4	186.9	264.4	260.0	367.7	243.7	344.7	191.0	270.2	175.9	248.8

Note:

Condition 1： T_C=38℃, T_E=5℃, $\triangle T_{sc}$=0K, $\triangle T_{sh}$=5K ；

Condition 2： T_C=54.4℃, T_E=7.2℃, $\triangle T_{sc}$=5K, $\triangle T_{sh}$=5K；

DUN AN

DSF Series for HP & HT

4-Way Reversing Valve

Capacity Table

Model	Part Number	Nominal Cooling Capacity [kW]											
		R1234yf				R1234ze				R513A			
		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2	
		0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2
DSF-4-2161	240005059500	2.5	3.5	2.3	3.2	2.4	3.4	2.2	3.1	2.7	3.8	2.4	3.5
DSF-9-2161	240007053700	5.7	8.0	5.1	7.2	5.4	7.7	5.0	7.1	6.1	8.6	5.5	7.8
DSF-9D-2161	240009100400	5.7	8.0	5.1	7.2	5.4	7.7	5.0	7.1	6.1	8.6	5.5	7.8
DSF-9H-2161	240009100500	5.7	8.0	5.1	7.2	5.4	7.7	5.0	7.1	6.1	8.6	5.5	7.8
DSF-11B-2161	240011044000	6.9	9.8	6.2	8.8	6.6	9.3	6.1	8.6	7.4	10.5	6.8	9.6
DSF-11E-2161	240011031900	6.9	9.8	6.2	8.8	6.6	9.3	6.1	8.6	7.4	10.5	6.8	9.6
DSF-20-2261	240020068600	12.7	18.0	11.5	16.2	12.2	17.2	11.3	15.9	13.6	19.3	12.4	17.6
DSF-20-2262	240020068700	12.7	18.0	11.5	16.2	12.2	17.2	11.3	15.9	13.6	19.3	12.4	17.6
DSF-20-2263	240020068800	15.7	22.2	14.1	20.0	15.0	21.2	13.9	19.6	16.8	23.8	15.3	21.7
DSF-34-2261	240034040900	21.1	29.8	19.0	26.9	20.1	28.5	18.6	26.4	22.6	31.9	20.6	29.1
DSF-34-2262	240034041000	22.9	32.3	20.6	29.2	21.8	30.9	20.2	28.6	24.5	34.7	22.3	31.6
DSF-38-2261	240038006000	24.0	34.0	21.7	30.7	23.0	32.5	21.3	30.1	25.8	36.5	23.5	33.2
DSF-50-2261	240050011400	29.3	41.5	26.4	37.4	28.0	39.6	25.9	36.7	31.4	44.4	28.6	40.5
DSF-70-2601	240070009100	43.8	62.0	39.9	56.4	41.9	59.2	39.1	55.3	47.0	66.4	43.2	61.1
DSF-105-2601	240010005000	65.6	92.7	59.1	83.6	62.6	88.5	58.0	82.0	70.3	99.4	64.0	90.6
DSF-140-2601	240014002700	89.1	126.0	80.3	113.6	85.1	120.3	78.8	111.4	95.5	135.0	87.0	123.1
DSF-180-2601	240018002100	113.1	159.9	101.9	144.1	108.0	152.7	100.0	141.4	121.2	171.4	110.5	156.2
DSF-210-2601	240021001400	132.5	187.3	119.4	168.9	126.5	178.9	117.1	165.6	142.0	200.8	129.4	183.0

Note:

Condition 1： T_C=38℃, T_E=5℃, $\triangle T_{sc}$=0K, $\triangle T_{sh}$=5K；

Condition 2： T_C=54.4℃, T_E=7.2℃, $\triangle T_{sc}$=5K, $\triangle T_{sh}$=5K；

4-Way Reversing Valve

Capacity Table

Model	Part Number	Nominal Cooling Capacity [kW]											
		R454A				R452B				R448A			
		Cond.1		Cond.2		Cond.1		Cond.2		Cond.1		Cond.2	
		0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2
DSF-4-2161	240005059500	3.5	5.0	3.1	4.4	4.3	6.1	4.0	5.7	3.5	4.9	3.1	4.4
DSF-9-2161	240007053700	8.0	11.3	7.1	10.1	9.8	13.9	9.1	12.8	7.8	11.1	7.0	10.0
DSF-9D-2161	240009100400	8.0	11.3	7.1	10.1	9.8	13.9	9.1	12.8	7.8	11.1	7.0	10.0
DSF-9H-2161	240009100500	8.0	11.3	7.1	10.1	9.8	13.9	9.1	12.8	7.8	11.1	7.0	10.0
DSF-11B-2161	240011044000	9.7	13.8	8.7	12.3	12.0	17.0	11.1	15.7	9.6	13.5	8.6	12.2
DSF-11E-2161	240011031900	9.7	13.8	8.7	12.3	12.0	17.0	11.1	15.7	9.6	13.5	8.6	12.2
DSF-20-2261	240020068600	17.9	25.3	16.0	22.7	22.1	31.3	20.4	28.8	17.6	24.9	15.8	22.4
DSF-20-2262	240020068700	17.9	25.3	16.0	22.7	22.1	31.3	20.4	28.8	17.6	24.9	15.8	22.4
DSF-20-2263	240020068800	22.1	31.2	19.7	27.9	27.2	38.5	25.1	35.5	21.7	30.7	19.5	27.6
DSF-34-2261	240034040900	29.7	41.9	26.5	37.5	36.6	51.7	33.7	47.7	29.1	41.2	26.2	37.1
DSF-34-2262	240034041000	32.2	45.5	28.8	40.7	39.7	56.1	36.6	51.8	31.6	44.7	28.4	40.2
DSF-38-2261	240038006000	33.8	47.8	30.3	42.8	41.8	59.0	38.5	54.4	33.3	47.0	29.9	42.3
DSF-50-2261	240050011400	41.2	58.3	36.9	52.5	50.9	72.0	46.9	66.4	40.5	57.3	36.4	51.5
DSF-70-2601	240070009100	61.7	87.2	55.7	78.7	76.1	107.6	70.8	100.1	60.6	85.7	55.0	77.7
DSF-105-2601	240010005000	92.2	130.4	82.5	116.7	113.8	161.0	104.9	148.4	90.7	128.2	81.5	115.3
DSF-140-2601	240014002700	125.3	177.2	112.1	158.6	154.6	218.7	142.6	201.6	123.2	174.2	110.7	156.6
DSF-180-2601	240018002100	159.1	225.0	142.4	201.3	196.3	277.6	181.0	255.9	156.3	221.1	140.6	198.8
DSF-210-2601	240021001400	186.4	263.6	166.8	235.9	230.0	325.3	212.0	299.9	183.2	259.1	164.7	232.9

Note:

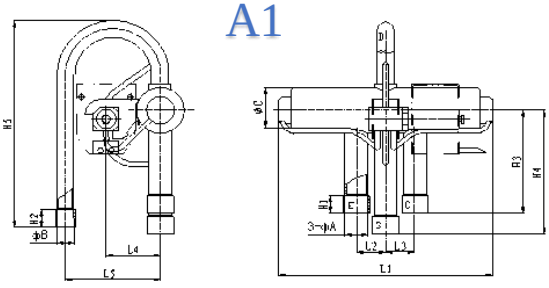
Condition 1： T_C=38℃, T_E=5℃, $\triangle T_{sc}$=0K, $\triangle T_{sh}$=5K ;

Condition 2： T_C=54.4℃, T_E=7.2℃, $\triangle T_{sc}$=5K, $\triangle T_{sh}$=5K;

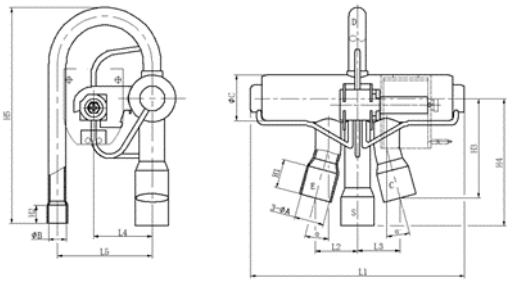
4-Way Reversing Valve

Ordering and Dimensions

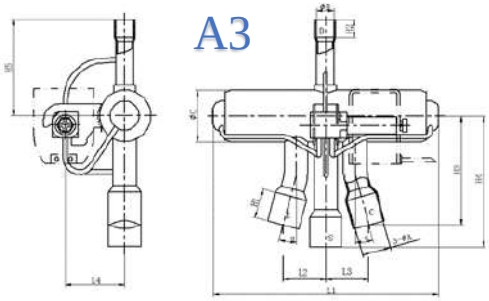
A1



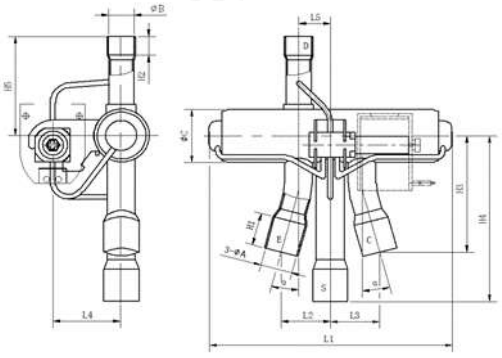
A2



A3



A4



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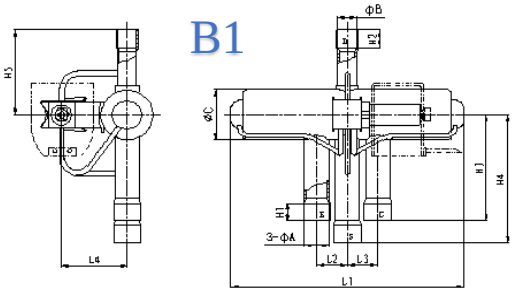

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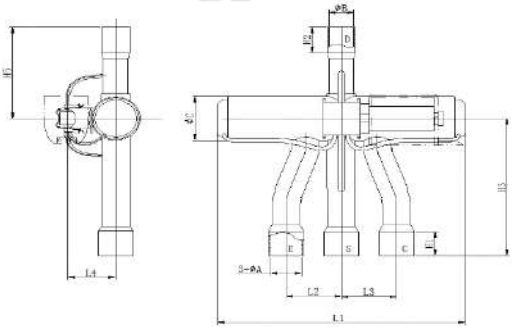

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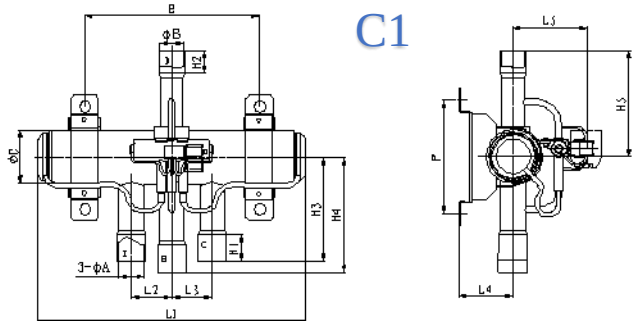


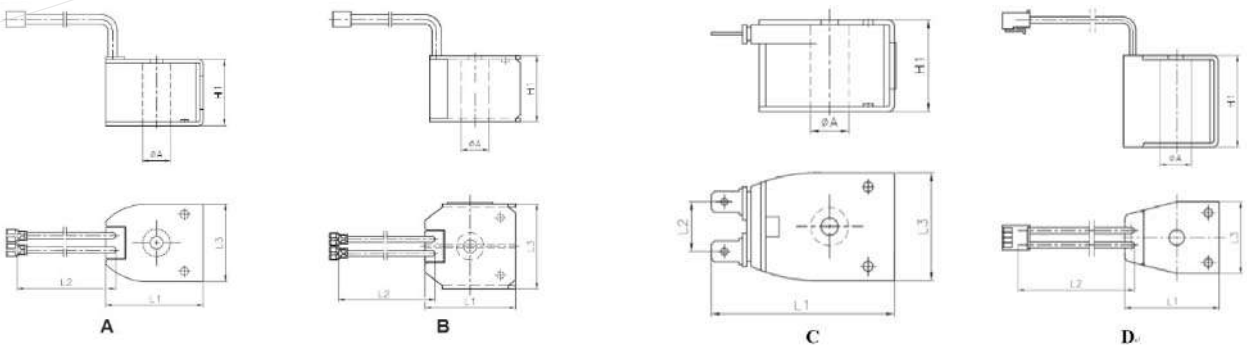
4-Way Reversing Valve

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-4-2161	A1	9.6	8.1	94	12	12	29	42	10	8.5	50	62	104	-	-	-
DSF-9-2161	A1	12.8	9.6	117	16	16	32	52	10	10	59	71	119	-	-	-
DSF-9D-2161	A3	16.1	9.6	117	23.5	23.5	32	-	16	10	57	72	52	-	-	-
DSF-9H-2161	B1	12.8	9.6	117	16	16	32	-	10	10	59	72	49	-	-	-
DSF-11B-2161	A4	16.1	12.8	117	25	25	32	-	17	10	62	87	52	15	-	-
DSF-11E-2161	A2	16.1	9.6	117	25	25	32	-	16	10	57	72	119	15	-	-
DSF-20-2261	B1	19.2	12.8	186	29	29	36.5	-	19	13	83	95	67	-	-	-
DSF-20-2262	B1	22.35	12.8	186	29	29	36.5	-	22.3	13	83	95	67	-	-	-
DSF-20-2263	B1	19.2	12.8	186	29	29	36.5	-	19	13	83	95	67	-	-	-
DSF-34 -2261	B1	28.58	22.4	224	33.5	33.5	41.5	-	23	22	86	98.6	82	-	-	-
DSF-34-2262	B1	22.3	19.2	224	33.5	33.5	41.5	-	22	19	86	98.6	82	-	-	-
DSF-38-2261	B2	28.6	22.5	224	50	50	40	-	25	25	140	-	93	-	-	-
DSF-50-2261	B1	28.6	22.5	245	37	37	40	-	30	25	94	107	93	-	-	-
DSF-70-2601	C1	32	25.6	300	45	45	57	90	30	25	116	129	116.5	-	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	90.3	40	35	147	167	139.6	-	230	166
DSF-180-2601	C1	54.2	38.1	383	58	58	65	90.4	40	35	147	197	139.6	-	230	166
DSF-210-2601	C1	66.96	50	480	71.5	71.5	65	90.5	40	33	147	215.6	139.6	-	262	166

4-Way Reversing Valve

Coil



Model	Style	A	L1	L2	L3	H2
		[mm]	[mm]	[mm]	[mm]	[mm]
DXQ-242-ND	C	11.7	53.5	15	33	28.5
DXQ-246	C	11.7	53.5	15	33	28.5
DXQ-111	A	11.7	40.5	250	33	27.5
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-1489	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

Note:
The wire length can be customized according to customer's requirements

4-Way Reversing Valve

DRVB Series

Application

DRVB series change the flow path of refrigerants by controlling the action of a small DSF valve to switch the mode between cooling and heating.

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 commonrefrigerants;
•For flange connection, please contact us.

Approvals

Declaration / Certification according to PED, CE, UL.

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

DunAn

DRVB Series

4-Way Reversing Valve

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
	[mm²]	[mm²]	[≤L/min]	[kW]								
DRVB115*	2142	2300	20	196	149	275	188	199	225	200	240	198
DRVB118*	2721	2909	30	264	200	370	253	268	303	270	323	266
DRVB121*	3608	4264	45	366	278	513	351	372	420	374	448	369
DRVB125*	5200	5867	60	476	362	667	457	484	547	487	583	481
DRVB126*	5847	7272	67	527	405	749	513	544	614	546	654	540
DRVB130*	7410	10200	90	762	580	1068	730	775	875	779	932	769

The nominal capacity is based on：

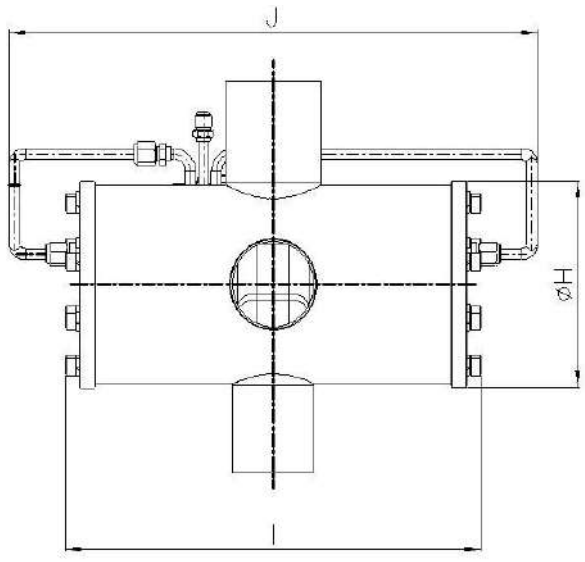
1.Condensing Temperature T_c=50℃; 2. Liquid Temperature Before Expansion Valve T_l=48 ℃;

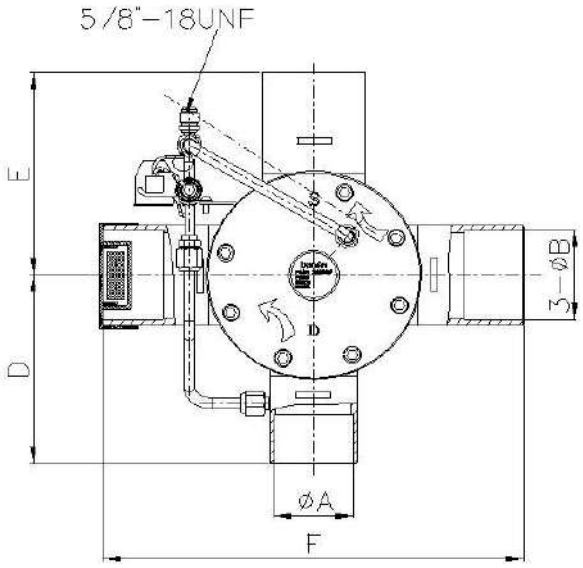
2.vaporating Temperature T_e=2 ℃; 4. Gas Superheat Degree △T_{sh}=6K; 5. Low Pressure Drop △p =0.015 MPa.

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

4-Way Reversing Valve

Ordering and Dimensions





Model	Code No.	Φ A [mm]	Φ B [mm]	D [mm]	E [mm]	F [mm]	Φ H [mm]	I [mm]	J [mm]	Weight [kg] (N.W.)
DRVB1155	340093000143	54	67	133	138	276	140	302	399	24
DRVB1185	340092000143	54	67	152	152	304	170	325	417	37
DRVB1215	340091000143	67	79	168	180	360	184	386	488	50
DRVB1255	340090000143	79	92	195	210	420	224	439	540	80
DRVB1265	340088000101	92	105	223	223	446	224	473	574	95
DRVB1305	340089000949	105	134	235	235	470	250	546	646	130

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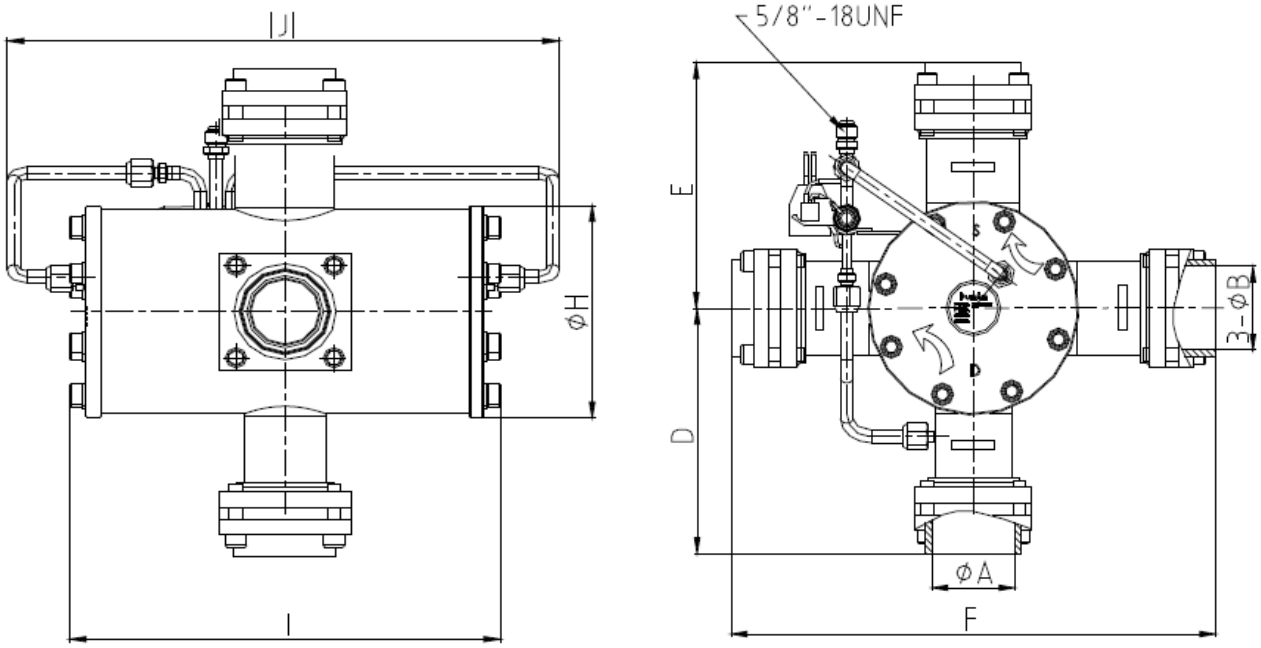
DRVB Series

4-Way Reversing Valve

Ordering and Dimensions



Model	Code No.	Φ A [mm]	Φ B [mm]	D [mm]	E [mm]	F [mm]	Φ H [mm]	I [mm]	J [mm]	Weight [kg]
DRVB1155-4	340093001548	54	67	187	201	402	140	302	399	28
DRVB1185-4	340092000948	54	67	195	195	390	170	325	417	43
DRVB1215-4	340091000948	67	79	211	228	456	184	386	488	58
DRVB1255-4	340090000148	79	92	243	264	528	224	439	540	93
DRVB1305-4	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 and UL.

Technical Data

Applicable Refrigerant: R134a, R407C, R404A, R410A, R290 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

DunAn

DPF Series

Electronic Expansion Valve

DPF Series Selection Table

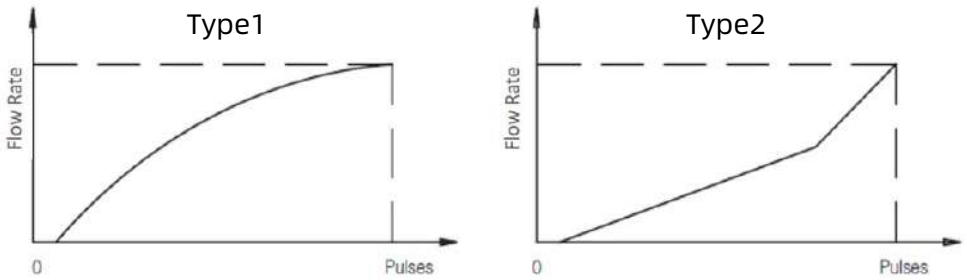
Model	Code No.	Style	Orifice Φ	Air Flow [0.1MPa]		Flow Type	Internal Leakage	Reverse OPD	MOPD	Max. Operating Pressure
				250 Pulses	500 Pulses					
			[mm]	[L/min]	[L/min]		[mL/min]	[MPa]	[MPa]	[MPa]
DPF(B)1.0-101	310011101700	A	1.0	9	≥ 12	1	≤ 600	≥ 2.2	3.5	4.5
DPF(B)1.0-103	310011100900	A		6		2				
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)2.8-101	310008002900	A	2.8	67	≥ 95	1	≤ 1000	≥ 1.5	2.8	
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	3.5	
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				

Electronic Expansion Valve

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 – 6.5
Insulation Class	E
Resistance	46±3.7Ω (DPF(B)1.0-6.5) (20℃)
Current	260mA/Phase(DPF(B)1.0-6.5) (20℃)
Protection Class	IP65(DPF(B)1.0-6.5)

Flow Characteristics



Nominal Capacity

Model	Orifice Φ	Nominal Capacity					
		R410A	R134a	R290	R407C	R404A	R32
	[mm]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
DPF(B)1.0	1.0	3.1	2.0	2.7	2.7	1.8	4.5
DPF(B)1.3	1.3	6.2	4.1	5.6	5.4	3.7	9.3
DPF(B)1.65	1.65	10.0	6.7	9.0	8.8	6.0	15.0
DPF(B)1.8	1.8	12.1	8.1	10.9	10.6	7.3	18.2
DPF(B)2.0	2.0	14.8	9.8	13.2	12.9	8.9	22.2
DPF(B)2.2	2.2	17.8	11.8	15.9	15.6	10.7	26.7
DPF(B)2.4	2.4	21.2	14.1	19.0	18.5	12.7	31.8
DPF(B)2.8	2.8	28.9	19.2	25.9	25.2	17.3	43.4
DPF(B)3.0	3.0	31.5	21.0	28.2	27.5	18.9	47.3
DPF(B)3.2	3.2	33.9	22.6	30.4	29.6	20.3	50.9
DPF(B)3.5	3.5	38	24.4	34.6	31.7	22.2	61.9
DPF(B)4.0	4.0	50.4	32.3	45.8	42.0	29.4	82.0
DPF(B)4.5	4.5	63.0	40.4	57.3	52.5	36.8	102.0
DPF(B)5.5	5.5	84.0	53.9	76.4	70.0	49.0	136.8
DPF(B)6.5	6.5	126.0	80.9	114.5	105.0	73.5	205.2

The nominal capacity is based on:

1.Valve fully open; 2. Condensing Temperature T_c=38℃; 3. Evaporating Temperature T_e=5℃

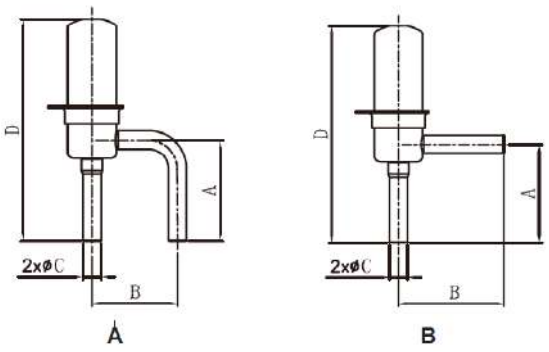
4.Superheat Degree ΔT_{sh}=0K; 5. Subcooling Degree ΔT_{sc}=0K

DUN AN

DPF Series

Electronic Expansion Valve

Style

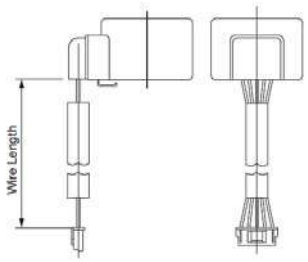


Dimensions

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) 2.8～3.2	A	35	36	5/16	77
	B	47	50		89
DPF(B)3.5～6.5	B	45	45	1/2	92

Coils

For application in systems with conventional refrigerants (e.g. R410A, R134a, R407C, R404A, R290, R600a, R1270 etc.)



Coil Model	Code No.	Valve Model	Wire Length	Wire Number	Connector
DPFX07-037	310701138900	DPF(B)1.0-6.5	2000	5	XHP-5
DPFX07-118	310701133500	DPF(B)1.0-6.5	2000	6	XHP-6

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 refrigerant temperature at the evaporator outlet, where the bulb must be placed.

Features

- Fixed (angleway type) and adjustable (straightway type) superheat can be supplied;
- 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;

Approvals

UL, CE.

Technical Data

Applicable Refrigerants: R134a, R404A, R507, R290, R407C and R448A/R449A

Max. Bulb Temperature: 100°C

Max. Valve Housing Temperature: 110°C

Max. Operating Pressure: 3.4 MPa

Max. Test Pressure: 3.75 MPa

Equalization Connections:1/4 in. (solder ODF)

Capillary Tube Length: 750mm

Bleed: 15% / 30%

Connections: 1/4, 3/8, 1/2 in.

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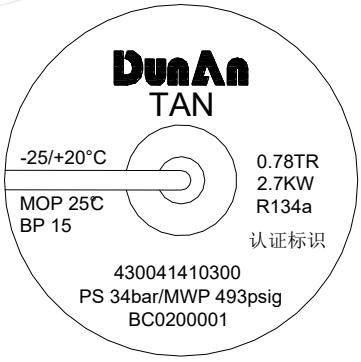
TA Series

Thermostatic Expansion Valve

Identification



Example

TAN/TAEN	= Type (N=R134a, E=external Pressure Equalization)
0.78TR	= Nominal Capacity in Tons
2.7kW	= Nominal Capacity in kW
R134a	= Refrigerant
-25/+20℃	= Evaporating Temperature Range
MOP 25℃	= Max. Evaporating Pressure
BP15	= Bleed 15%
430041410300	= Code Number
PS34bar/MWP	= Max. Working Pressure
493psig	
BC0200001	= Date Marking

Refrigerant

X: R22 **Z:** R407C

N: R134a **P:** R290

S: R404A/R507

Nominal Capacity

Model	R134a		R407C		R404A/R507C		R290		R448A/449A	
	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW
TA/TAE 0	0.11	0.4	0.16	0.5	0.11	0.38	0.17	0.6	0.15	0.5
TA/TAE 1	0.25	0.9	0.3	1.1	0.21	0.7	0.32	1.2	0.3	1.0
TA/TAE 2	0.5	1.8	0.8	2.7	0.45	1.6	0.74	2.6	0.7	2.5
TA/TAE 3	0.78	2.7	1.1	3.8	0.6	2.1	1.1	3.9	1.0	3.5
TA/TAE 4	1.3	4.6	1.6	5.6	1.2	4.2	1.6	5.6	1.5	5.2
TA/TAE 5	1.9	6.7	2.5	8.6	1.7	6.0	2.4	8.4	2.3	8.0
TA/TAE 6	2.5	8.6	3.2	11.3	2.2	7.7	3.2	11.2	3.0	10.5
TA/TAE 7	3.0	10.5	4.9	16.7	2.6	9.1	4.7	16.5	4.5	15.5

The Nominal capacity is based on:

1.Evaporating Temperature T_e=5℃; 2. Condensing Temperature T_c=32℃; 3. Liquid Temperature T_l=28℃;
4. Static Superheat SS=4K; 5. Opening Superheat OS=4K.

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 +15°C
R134a	(Without MOP)	6.7 bar	3.9 bar	4.7 bar
R404A	(Without MOP)	12.6 bar	8.3 bar	9.9 bar
R290	(Without MOP)	9.5 bar	6.3 bar	7.4 bar
R407C	(Without MOP)	11.9 bar	6.6 bar	7.8 bar

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

Thermostatic Expansion Valve

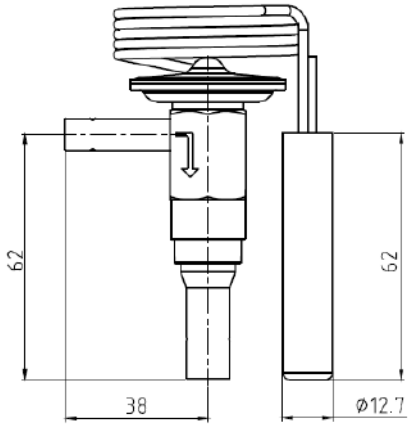
Ordering

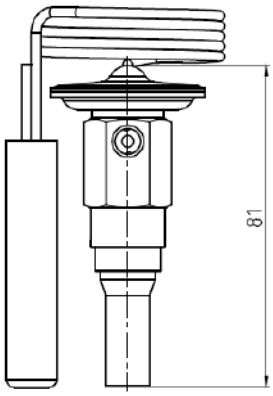
Refrigerant	Model	Connection Solder	Code No.	
			Range N = -40 ~ +10℃	
		Inlet X Outlet [in.]	Angleway Internal Equalization	Straightway Internal Equalization
R134a	TAN/TAEN 0	1/4x3/8	430080014300	430080015100
	TAN/TAEN 1	1/4x3/8	430080014400	430080003200
	TAN/TAEN 2	1/4x3/8	430080014500	430080015200
	TAN/TAEN 3	1/4x3/8	430080014600	430080015400
	TAN/TAEN 4	1/4x3/8	430080014700	430080015500
	TAN/TAEN 5	3/8x1/2	430080014800	430080015600
	TAN/TAEN 6	3/8x1/2	430080014900	430080015700
	TAN/TAEN 7	3/8x1/2	430080015000	430080015800
R407C	TAZ/TAEZ 0	1/4x3/8	430080009500	430080010300
	TAZ/TAEZ 1	1/4x3/8	430080009600	430080010400
	TAZ/TAEZ 2	1/4x3/8	430080009700	430080010500
	TAZ/TAEZ 3	1/4x3/8	430080009800	430080010600
	TAZ/TAEZ 4	1/4x3/8	430080005800	430080010700
	TAZ/TAEZ 5	3/8x1/2	430080010000	430080010800
	TAZ/TAEZ 6	3/8x1/2	430080010100	430080010900
	TAZ/TAEZ 7	3/8x1/2	430080010200	430080011000
R404A/R507C	TAS/TAES 0	1/4x3/8	430080012600	430080013500
	TAS/TAES 1	1/4x3/8	430080012800	430080013600
	TAS/TAES 2	1/4x3/8	430080012900	430080013700
	TAS/TAES 3	1/4x3/8	430080013000	430080013800
	TAS/TAES 4	1/4x3/8	430080013100	430080013900
	TAS/TAES 5	3/8x1/2	430080013200	430080014000
	TAS/TAES 6	3/8x1/2	430080013300	430080014100
	TAS/TAES 7	3/8x1/2	430080013400	430080014200
R290	TAP/TAEP 0	1/4x3/8	430080015900	430080016400
	TAP/TAEP 1	1/4x3/8	430080001600	430080002900
	TAP/TAEP 2	1/4x3/8	430080001700	430080003100
	TAP/TAEP 3	1/4x3/8	430080001800	430080004100
	TAP/TAEP 4	1/4x3/8	430080016000	430080004200
	TAP/TAEP 5	3/8x1/2	430080016100	430080016500
	TAP/TAEP 6	3/8x1/2	430080016200	430080016600
	TAP/TAEP 7	3/8x1/2	430080016300	430080016700

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

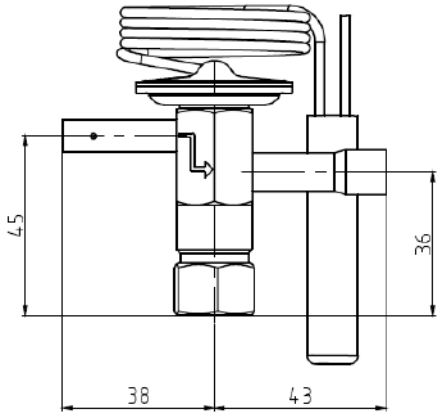
Thermostatic Expansion Valve

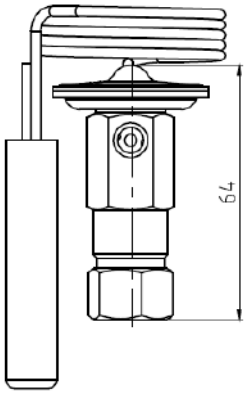
Dimensions and Weight



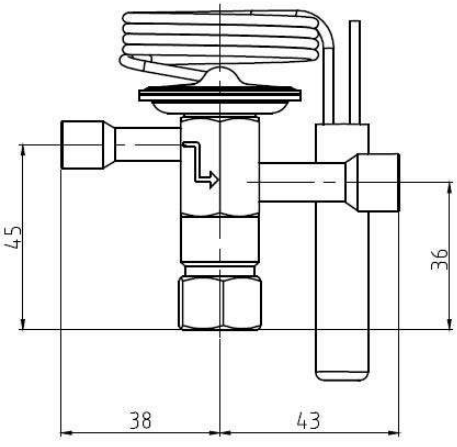


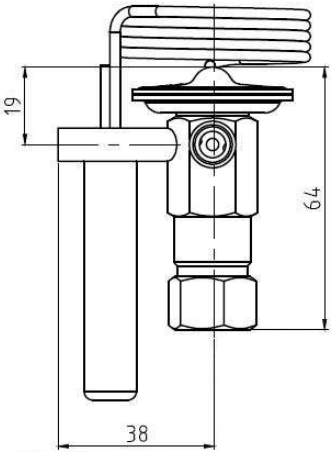
Angleway, Internal Equalization,
Non-Adjustable
Weight Approx.: 0.19 kg





Straightway, Internal
Equalization, Adjustable
Weight Approx.: 0.21kg





Straightway, External Equalization,
Adjustable
Weight Approx.: 0.21kg

Thermostatic Expansion Valve

TCCE Series

Application

TCCE type Thermostatic expansion valve is used to regulate refrigerant flow into the evaporator by measuring the superheat to control the refrigerant supply, which is especially for applications in residential air conditioning systems, split systems, roof top units, heat pumps, light commercial air conditioning systems, chillers.

Features

- Compact size - hermetic design;
- Fixed and adjustable superheat;
- Straight flow channel structure;
- Versions with and without check valve;
- Product with BP function or special installation, please contact us;
- Connection possibilities: Solder, Chatleff/Aeroquip etc.

Approvals

UL, CE.

Technical Data

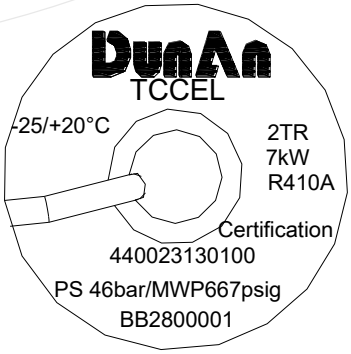
Applicable Refrigerants: R407C, R410A, R134a, R404A, R507, R290, and R32
Max. Bulb Temperature: 100°C
Max. Valve Body Temperature: 110°C
Max. Operating Pressure: 4.6 MPa
Max. Test Pressure: 5.1 MPa
Options for Connections: ODF (3/8, 1/2, 5/8)
Equalization: 1/4 in. (ODF)
Capillary Tube: 800 mm

DunAn

TCCE Series

Thermostatic Expansion Valve

Identification



Example

TCCEL	= Type (L = R410A)
2TR	= Rated Capacity in Tons
7kW	= Rated Capacity in kW
R410A	= Refrigerant
-25/+20℃	= Evaporating Temperature Range
440023130100	= Code Number
PS 46bar/MWP 667psig	= Max. Working Pressure
BB2800001	= Date Marking

Refrigerant

N: R134a **Z:** R407C

S: R404A/R507 **P:** R290

L: R410A D: R32

MOP Options

Refrigerant	Range N -40°C ~ +10°C	Range K -25°C ~ +20°C MOP 25°C
R404A/R507	(Without MOP)	11.4 bar
R407C	(Without MOP)	9.2 bar
R134a	(Without MOP)	5.6 bar
R410A	(Without MOP)	15.6 bar

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

Nominal Capacity

Model	Orifice No.	R407C		R410A		R134a		R404A/R507		R290	
		kW	TR	kW	TR	kW	TR	kW	TR	kW	TR
TCCE	1	5.3	1.5	7.0	2.0	4.6	1.3	4.2	1.2	6.3	1.8
	2	7	2.0	8.8	2.5	5.6	1.6	5.6	1.6	7.7	2.2
	3	8	2.3	10.5	3.0	7.0	2.0	6.7	1.9	9.1	2.6
	4	9.5	2.7	12.3	3.5	8.1	2.3	7.7	2.2	10.9	3.1
	5	11	3.1	14.0	4.0	9.1	2.6	8.8	2.5	12.3	3.5
	6	13.3	3.8	17.5	5.0	11.5	3.3	10.9	3.1	15.4	4.4
	7	16.1	4.6	21.0	6.0	13.7	3.9	13.0	3.7	18.6	5.3
	8	18.9	5.4	24.5	7.0	16.1	4.6	15.1	4.3	21.4	6.1

The nominal capacity is based on:

1.Evaporating Temperature T_e =5℃; 2. Liquid Temperature T_l = 28℃;

3.Condensing Temperature T_c = 32℃; 4. Opening Superheat OS =4K

Thermostatic Expansion Valve

Ordering

Range N, Adjustable Superheat, without check valve

Refrigerant	Model / Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
R410A	TCCE 1	3/8×1/2	1/4	440080012100
	TCCE 2	3/8×1/2	1/4	440080012300
	TCCE 3	3/8×1/2	1/4	440080012200
	TCCE 4	3/8×1/2	1/4	440080012400
	TCCE 5	3/8×1/2	1/4	440080012500
		1/2×5/8	1/4	440080012900
	TCCE 6	3/8×1/2	1/4	440080012600
		1/2×5/8	1/4	440080013000
	TCCE 7	3/8×1/2	1/4	440080012700
		1/2×5/8	1/4	440080013100
	TCCE 8	3/8×1/2	1/4	440080012800
		1/2×5/8	1/4	440080013200
R22/R407C	TCCE 1	3/8×1/2	1/4	440080014900
	TCCE 2	3/8×1/2	1/4	440080015000
	TCCE 3	3/8×1/2	1/4	440080015100
	TCCE 4	3/8×1/2	1/4	440080015200
	TCCE 5	1/2×5/8	1/4	440080015300
	TCCE 6	1/2×5/8	1/4	440080015400
	TCCE 7	1/2×5/8	1/4	440080015500
	TCCE 8	1/2×5/8	1/4	440080015600

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

Thermostatic Expansion Valve

Ordering

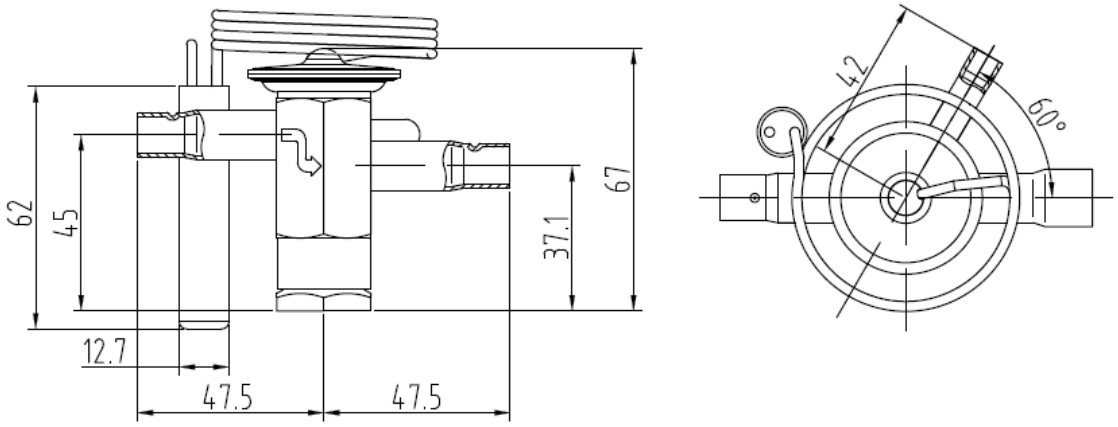
Range K, Adjustable Superheat, without check valve

Refrigerant	Model / Orifice No.	Connection Solder		Code No.
		Inlet xOutlet [in.]	Equalization [in.]	
R410A	TCCE 1	3/8×1/2	1/4	440080001400
	TCCE 2	3/8×1/2	1/4	440080014000
	TCCE 3	3/8×1/2	1/4	440080001500
	TCCE 4	3/8×1/2	1/4	440080001600
	TCCE 5	3/8×1/2	1/4	440080014100
		1/2×5/8	1/4	440080014200
	TCCE 6	3/8×1/2	1/4	440080014300
		1/2×5/8	1/4	440080014400
	TCCE 7	3/8×1/2	1/4	440080014500
		1/2×5/8	1/4	440080014600
	TCCE 8	3/8×1/2	1/4	440080014700
		1/2×5/8	1/4	440080014800
R22/R407C	TCCE 1	3/8×1/2	1/4	440080015700
	TCCE 2	3/8×1/2	1/4	440080015800
	TCCE 3	3/8×1/2	1/4	440080015900
	TCCE 4	3/8×1/2	1/4	440080016000
	TCCE 5	1/2×5/8	1/4	440080016100
	TCCE 6	1/2×5/8	1/4	440080016200
	TCCE 7	1/2×5/8	1/4	440080016300
	TCCE 8	1/2×5/8	1/4	440080016400

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

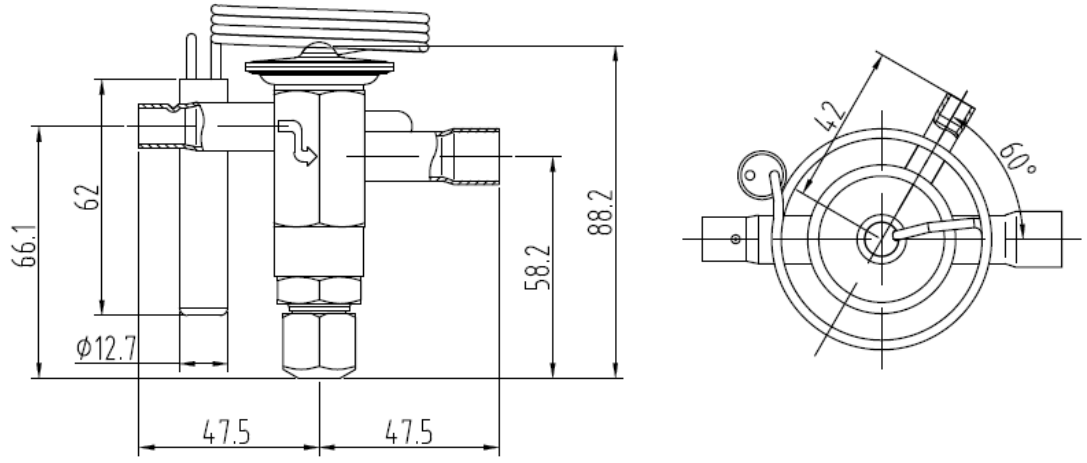
Dimensions and weights

Fixed setting



Weight Approx.: 0.32 kg

Adjustable setting



Weight Approx.: 0.36 kg

Thermostatic Expansion Valve

TCE/TCBE Series

Application

TCE/TCBE thermostatic expansion valves are used to adjust the supply of refrigerant in evaporator by controlling the superheat. The senor bulb is placed at the outlet of the evaporator. TCE/TCBE thermostatic expansion valves are applicable to large capacity systems, such as bus and central air conditioning system, heat pump, and water chillers.

Features

- 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, and R410A
Max. Sensor Bulb Temperature: 100°C
Max. Valve Body Temperature: 110°C
Max. Operating Pressure: 4.6 MPa
Max. Test Pressure: 5.1 MPa
External Balance Connection: 1/4 in.
Capillary Lengths: 1500 mm

Thermostatic Expansion Valve

Identification

Example

TCEX	= Type (X=R22)
3 TR	= Nominal Capacity in Tons
10 kW	= Nominal Capacity in kW
R22/R407C	= Refrigerant
-25/+10℃	= Evaporating Temperature Range
MOP 15℃	= Max. Evaporating Pressure
BP15	= Bleed 15%
440031002000	= Code Number
PS 46bar/MWP 667psig	= Max. Working Pressure
EF2300001	= Date Marking

Refrigerant

Z: R407C **N:** R134a **L:** R410A

S: R404A/R507

K: R448A/R449A

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)	3.8 bar
R410A	(Without MOP)	11.4 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	
		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
	4.5	8	2.5	9	2.5	13	3.5	16	4.5	24	7	14	4
	6.5	12	3.5	14	4	19	5	24	6.5	35	10	19	5
	9	17	4.5	18	5	25	7	32	9	47	13	25	7
	11	20	5.5	21	6	30	8.5	37	11	54	15	32	9
	13	24	7	26	7.5	36	10	45	13	68	19	36	10
	14	29	8	31	9	39	11	50	14	74	21	44	12
TCBE	15	29	8	31	9	42	12	54	15	81	23	44	12
	19	37	10	39	11	53	15	68	19	102	29	54	15
	23	44	12	45	13	62	18	79	23	120	34	63	18

The nominal capacity is based on:

1. Evaporating Temperature T_e=4.4℃; 2. Liquid Temperature Before Valve T_l=37℃;
3. Condensing Temperature T_c=38℃; 4. Static Superheat SS=4K; 5. Opening Superheat OS=4K.

Thermostatic Expansion Valve

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	440080020000
	3.5	1/2×5/8	1/4	440080020100
	4.5	1/2×7/8	1/4	440080020200
	6.5	1/2×5/8	1/4	440080020300
	6.5	1/2×7/8	1/4	440080020400
	6.5	5/8×7/8	1/4	440080020500
	9	5/8×7/8	1/4	440080020600
	11	5/8×7/8	1/4	440080034700
	13	5/8×7/8	1/4	440080020700
	13	5/8×1-1/8	1/4	440080020800
	14	5/8×7/8	1/4	440080020900
TCBEN	15	5/8×7/8	1/4	440080021000
	15	5/8×1-1/8	1/4	440080021100
	19	5/8×1-1/8	1/4	440080021200
	19	7/8×1-1/8	1/4	440080021300
	23	7/8×1-1/8	1/4	440080021400
	23	7/8×1-3/8	1/4	440080021500

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

Thermostatic Expansion Valve

Ordering

R134a: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCEN	3.5	3/8×5/8	1/4	440080021600
	3.5	1/2×5/8	1/4	440080021700
	4.5	1/2×7/8	1/4	440080021800
	6.5	1/2×5/8	1/4	440080021900
	6.5	1/2×7/8	1/4	440080022000
	6.5	5/8×7/8	1/4	440080022100
	9	5/8×7/8	1/4	440080022200
	11	5/8×7/8	1/4	440080034800
	13	5/8×7/8	1/4	440080022300
	13	5/8×1-1/8	1/4	440080022400
	14	5/8×7/8	1/4	440080022500
TCBEN	15	5/8×7/8	1/4	440080022600
	15	5/8×1-1/8	1/4	440080022700
	19	5/8×1-1/8	1/4	440080022800
	19	7/8×1-1/8	1/4	440080022900
	23	7/8×1-1/8	1/4	440080023000
	23	7/8×1-3/8	1/4	440080023100

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

Thermostatic Expansion Valve

Ordering

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

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCES	3.5	3/8×5/8	1/4	440080023200
	3.5	1/2×5/8	1/4	440080023300
	4.5	1/2×7/8	1/4	440080023400
	6.5	1/2×7/8	1/4	440080023500
	6.5	1/2×5/8	1/4	440080023600
	6.5	5/8×7/8	1/4	440080023700
	9	1/2×5/8	1/4	440080023800
	9	5/8×7/8	1/4	440080023900
	11	5/8×7/8	1/4	440080034900
	13	5/8×7/8	1/4	440080024000
	13	5/8×1-1/8	1/4	440080024100
TCBES	14	5/8×7/8	1/4	440080024200
	15	5/8×7/8	1/4	440080024300
	15	5/8×1-1/8	1/4	440080024400
	19	5/8×1-1/8	1/4	440080024500
	19	5/8×1-1/8	1/4	440080024600
	23	7/8×1-1/8	1/4	440080024700

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

Thermostatic Expansion Valve

Ordering

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

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCES	3.5	3/8×5/8	1/4	440080024800
	3.5	1/2×5/8	1/4	440080024900
	4.5	1/2×7/8	1/4	440080025000
	6.5	1/2×7/8	1/4	440080025100
	6.5	1/2×5/8	1/4	440080025200
	6.5	5/8×7/8	1/4	440080025300
	9	1/2×5/8	1/4	440080025400
	9	1/2×7/8	1/4	440080025500
	11	5/8×7/8	1/4	440080034900
	13	5/8×7/8	1/4	440080025600
	13	5/8×1-1/8	1/4	440080025700
TCBES	14	5/8×7/8	1/4	440080025800
	15	5/8×7/8	1/4	440080025900
	15	5/8×1-1/8	1/4	440080026000
	19	5/8×1-1/8	1/4	440080026100
	19	5/8×1-1/8	1/4	440080026200
	23	7/8×1-1/8	1/4	440080026300

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

Thermostatic Expansion Valve

Ordering

R407C: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCENZ	3.5	3/8×5/8	1/4	440080026400
	3.5	1/2×5/8	1/4	440080026500
	4.5	1/2×7/8	1/4	440080026600
	6.5	1/2×5/8	1/4	440080026700
	6.5	1/2×7/8	1/4	440080026800
	6.5	5/8×7/8	1/4	440080026900
	9	5/8×7/8	1/4	440080027000
	11	5/8×7/8	1/4	440080035100
	13	5/8×7/8	1/4	440080027100
	13	5/8×1-1/8	1/4	440080027200
	14	5/8×7/8	1/4	440080035300
TCBEZ	15	5/8×7/8	1/4	440080027300
	15	5/8×1-1/8	1/4	440080027400
	19	5/8×1-1/8	1/4	440080027500
	19	7/8×1-1/8	1/4	440080027600
	23	7/8×1-1/8	1/4	440080027700
	23	7/8×1-3/8	1/4	440080027800

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

Thermostatic Expansion Valve

Ordering

R407C: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCEZ	3.5	3/8×5/8	1/4	440080028000
	3.5	1/2×5/8	1/4	440080028100
	4.5	1/2×7/8	1/4	440080028200
	6.5	1/2×5/8	1/4	440080028300
	6.5	1/2×7/8	1/4	440080028400
	6.5	5/8×7/8	1/4	440080028500
	9	5/8×7/8	1/4	440080028600
	11	5/8×7/8	1/4	440080035400
	13	5/8×7/8	1/4	440080028700
	13	5/8×1-1/8	1/4	440080028800
	14	5/8×7/8	1/4	440080035500
TCBEZ	15	5/8×7/8	1/4	440080028900
	15	5/8×1-1/8	1/4	440080029000
	19	5/8×1-1/8	1/4	440080029100
	19	7/8×1-1/8	1/4	440080029200
	23	7/8×1-1/8	1/4	440080029300
	23	7/8×1-3/8	1/4	440080029400

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

Thermostatic Expansion Valve

Ordering

R410A: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCEL	3.5	3/8×5/8	1/4	440080029500
	3.5	1/2×5/8	1/4	440080029600
	4.5	1/2×7/8	1/4	440080029700
	6.5	1/2×5/8	1/4	440080029800
	6.5	1/2×7/8	1/4	440080029900
	6.5	5/8×7/8	1/4	440080030000
	9	5/8×7/8	1/4	440080030100
	11	5/8×7/8	1/4	440080032700
	13	5/8×7/8	1/4	440080030200
	13	5/8×1-1/8	1/4	440080030300
	14	5/8×7/8	1/4	440080035600
TCBEL	15	5/8×7/8	1/4	440080030500
	15	5/8×1-1/8	1/4	440080030600
	19	5/8×1-1/8	1/4	440080030700
	19	7/8×1-1/8	1/4	440080030800
	23	7/8×1-1/8	1/4	440080030900
	23	7/8×1-3/8	1/4	440080031000

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

Thermostatic Expansion Valve

Ordering

R410A: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCEL	3.5	3/8×5/8	1/4	440080031100
	3.5	1/2×5/8	1/4	440080031200
	4.5	1/2×7/8	1/4	440080031300
	6.5	1/2×5/8	1/4	440080031400
	6.5	1/2×7/8	1/4	440080031500
	6.5	5/8×7/8	1/4	440080031600
	9	5/8×7/8	1/4	440080031700
	11	5/8×7/8	1/4	440080035700
	13	5/8×7/8	1/4	440080031800
	13	5/8×1-1/8	1/4	440080031900
	14	5/8×7/8	1/4	440080035800
TCBEL	15	5/8×7/8	1/4	440080032000
	15	5/8×1-1/8	1/4	440080032100
	19	5/8×1-1/8	1/4	440080032200
	19	7/8×1-1/8	1/4	440080032300
	23	7/8×1-1/8	1/4	440080032400
	23	7/8×1-3/8	1/4	440080032500

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

Thermostatic Expansion Valve

Ordering

R32: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCEB	3.5	3/8×5/8	1/4	440080032800
	3.5	1/2×5/8	1/4	440080032900
	4.5	1/2×7/8	1/4	440080033000
	6.5	1/2×5/8	1/4	440080033100
	6.5	1/2×7/8	1/4	440080033200
	6.5	5/8×7/8	1/4	440080033300
	9	1/2×5/8	1/4	440080033400
	9	5/8×7/8	1/4	440080033500
	11	5/8×7/8	1/4	440080033600
	13	5/8×7/8	1/4	440080033700
	14	5/8×7/8	1/4	440080033800
TCBEB	15	5/8×7/8	1/4	440080033900

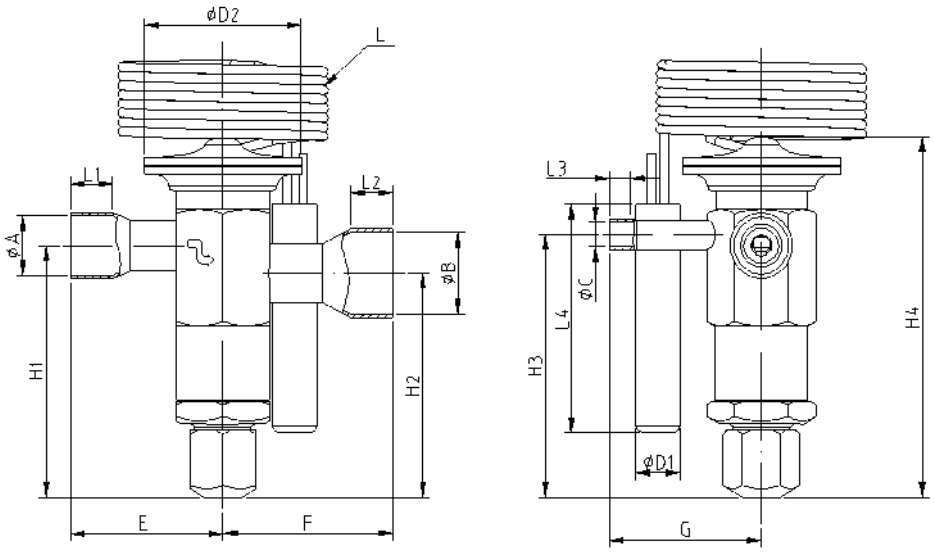
R290: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection Solder		Code No.
		Inlet x Outlet [in.]	Equalization [in.]	
TCEP	6.5	5/8×7/8	1/4	440080034000
	13	5/8×7/8	1/4	440080034100
TCBEP	15	5/8×7/8	1/4	440080034200
	19	7/8×7/8	1/4	440080034300
	23	7/8×7/8	1/4	440080034400

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

Thermostatic Expansion Valve

Dimensions



Model	Connection Inlet × Outlet ODF	L	E	F	G	H1	H2	H3	H4	L1	L2	L3	L4	ΦD 1	ΦD 2	ΦC	Weight
	in.	m	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg
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	43.5	48.5													
	5/8x7/8	1.5															
	5/8x1-1/8	1.5	43.5	60.5							16						
TCBE	5/8x7/8	1.5	50.5	57.5	44	72.5	65	78.5	106	12	12	6	76	19	53	6.4	0.62
	5/8x1-1/8	1.5	50.5	60.5							16						
	7/8x1-1/8	1.5	57.5	60.5													
	7/8x1-3/8	1.5	57.5	65.5							20						

Thermostatic Expansion Valve

TI Series

Application

TI/TIE series are used to regulate liquid refrigerant flow injecting into evaporator by sensing the refrigerant temperature at the evaporator outlet, where the sensing bulb must be placed, and specially applied for refrigeration, ice machines applications, heat pumps as well as air conditioners.

Features

- Available with MOP;
- Interchangeable orifice assembly makes it easy to match capacity and storage;
- Connection available with Flare and Solder
- For bi-flow system, please contact us.

Approvals

UL, CE.

Technical Data

Applicable Refrigerant: R22, R134a, R404A, R507, R407C, and R410A
Max. Temperature
Bulb, when valve is installed: 100°C
Valve body temperature: 110°C
Max. Working Pressure: 4.6MPa
Max. Test Pressure: 5.1MPa
Pressure Equalization: 1/4'' (Flare/Solder)
Capillary Tube Length: 1500mm

Thermostatic Expansion Valve

Identification

Example

TIES	= Model (S:R404A)
R404A	= Refrigerant
-40/+10℃	= Evaporation
430002070801	= Ordering Code Number
MOP15℃	= Max. Operation Pressure
PS 46 bar/MWP667psig	= Max. Working Pressure
BC0300005	= Date Marking

Refrigerant

X: R22 **Z:** R407C **N:** R134a **L:** R410A

S: R404A/R507 **K:** R448A/R449A

Nominal Capacity

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

The nominal capacity is based on:

1.Evaporating Temperature T_e=4.4℃; 2.Condensing Temperature T_c=38 ℃; 3.Refrigerant Temperature T_l=37 ℃;

MOP Options

Refrigerant	Range N -40°C ~ +10°C	Range NL -40°C ~ -15°C
	MOP +15°C	MOP -10°C
R22/R407C	6.9 bar	2.4 bar
R404A/R507	8.3 bar	3.4 bar
R407C	6.6 bar	—
R134a	3.8 bar	1.0 bar
R410A	11.5 bar	—

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

DunAn

TI Series

Thermostatic Expansion Valve

Ordering

Refrigerant	Model	Connection					Code No.
		Inlet [in.]	Outlet [in.]		Equalization [in.]		Range N = -40 ~ +10℃
		Flare	Flare	Solder	Flare	Solder	Without MOP
R134a	TIN	3/8	1/2	—	—	—	430080007000
	TIEN	3/8	1/2	—	1/4	—	430080007100
	TIN	3/8	—	1/2	—	—	430080007200
	TIEN	3/8	—	1/2	—	1/4	430080007300
R404A/ R507	TIS	3/8	1/2	—	—	—	430080007400
	TIES	3/8	1/2	—	1/4	—	430080007500
	TIS	3/8	—	1/2	—	—	430080007600
	TIES	3/8	—	1/2	—	1/4	430080007700
R410A	TIL	3/8	1/2	—	—	—	430080007800
	TIEL	3/8	1/2	—	1/4	—	430080007900
	TIL	3/8	—	1/2	—	—	430080008000
	TIEL	3/8	—	1/2	—	1/4	430080008100
R407C	TIZ	3/8	1/2	—	—	—	430080006600
	TIEZ	3/8	1/2	—	1/4	—	430080006700
	TIZ	3/8	—	1/2	—	—	430080006800
	TIEZ	3/8	—	1/2	—	1/4	430080006900
R448A/R449A	TIK	3/8	1/2	—	—	—	430080004300
	TIEK	3/8	1/2	—	1/4	—	430080003900
	TIK	3/8	—	1/2	—	—	430080005900
	TIEK	3/8	—	1/2	—	1/4	430080008200

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

Thermostatic Expansion Valve

Ordering

Refrigerant	Model	Connection					Code No.
		Inlet [in.]	Outlet [in.]		Equalization [in.]		-40℃～+10°C
		Flare	Flare	Solder	Flare	Solder	With MOP
R134a	TIN	3/8	1/2	—	—	—	430080008300
	TIEN	3/8	1/2	—	1/4	—	430080008400
	TIN	3/8	—	1/2	—	—	430080008500
	TIEN	3/8	—	1/2	—	1/4	430080008600
R404A/ R507	TIS	3/8	1/2	—	—	—	430080008700
	TIES	3/8	1/2	—	1/4	—	430080008800
	TIS	3/8	—	1/2	—	—	430080008900
	TIES	3/8	—	1/2	—	1/4	430080009000
R448A/R449A	TIK	3/8	1/2	—	—	—	430080009100
	TIEK	3/8	1/2	—	1/4	—	430080009200
	TIK	3/8	—	1/2	—	—	430080009300
	TIEK	3/8	—	1/2	—	1/4	430080009400

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

Flare Connections

Connection [in.]	Code No.
1/4	280404006525
3/8	280408006523
1/2	280410006525

Solder Adaptor

Connection ODF Solder	Code No.
3/8 in.	434900080001
10mm	434900080000

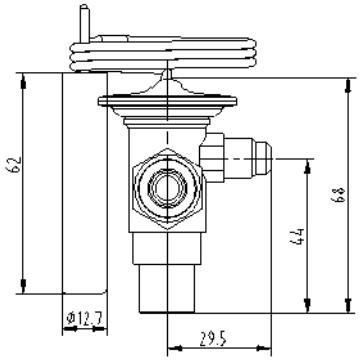
DunAn
TI Series

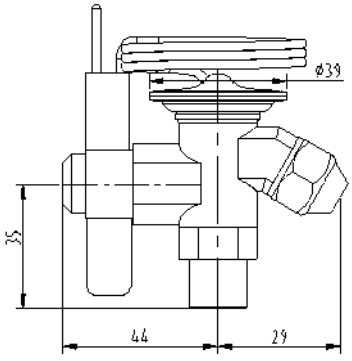
Thermostatic Expansion Valve

Orifice Assembly with Filter

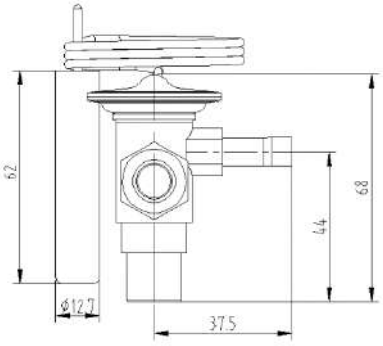
Orifice No.	Code No.
0x	433900000001
00	433900000002
01	433900000003
02	433900000004
03	433900000005
04	433900000006
05	433900000007
06	433900000008

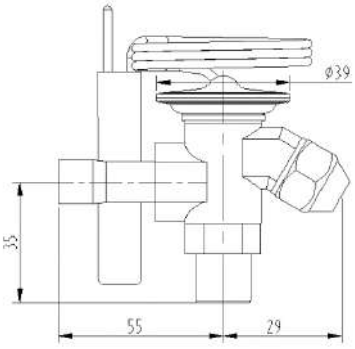
Dimensions





Connection: flare / flare / flare
Weight Approx.: 0.35kg





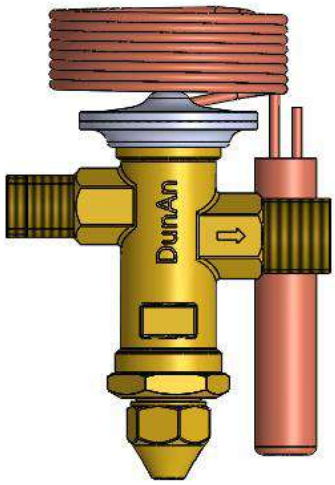
Connection: flare / solder / solder
Weight Approx.: 0.35kg

Thermostatic Expansion Valve

TSBE Series

Application

TSBE thermostatic expansion valves are used to adjust the supply of refrigerant in evaporator by controlling the superheat. The senor bulb is placed at the outlet of the evaporator. TCE/TCBE thermostatic expansion valves are applicable for commercial refrigeration, transportation a conditioning system, heat pump, and water chillers.



Features

- Straightway design;
- Bleed function;
- Bi-Flow design;
- Adjustable superheat;
- Laser welding of power element, long lifetime of diaphragm;
- Available with MOP(MOP15°C);

Approvals

Declaration according to PED

Technical Data

Applicable Refrigerants: R134a, R404A, R507, R407C, and R410A
Max. Sensor Bulb Temperature: 100°C
Max. Valve Body Temperature: 110°C
Max. Operating Pressure: 4.6 MPa
Max. Test Pressure: 5.1 MPa
External Balance Connection: 1/4 in.
Capillary Lengths: 1500 mm

DunAn

TSBE Series

Thermostatic Expansion Valve

Identification

Example

TSBEN	= Type (N=R134a)
3 TR	= Nominal Capacity in Tons
10 kW	= Nominal Capacity in kW
R22/R407C	= Refrigerant
-25/+10℃	= Evaporating Temperature Range
MOP 15℃	= Max. Evaporating Pressure
BP15	= Bleed 15%
440031002000	= Code Number
PS 46bar/MWP 667psig	= Max. Working Pressure
EF2300001	= Date Marking

Refrigerant

Z: R407C **L:** R410A **N:** R134a

S: R404A/R507

K: R448A/R449A

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)	3.8 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	
		kW	TR	kW	TR	kW	TR	kW	TR	KW	TR	KW	TR
TSBE	3.5	6	1.5	7	2	9	2.5	12	3.5	18	5	10	3
	4.5	8	2.5	9	2.5	13	3.5	16	4.5	24	7	14	4
	6.5	12	3.5	14	4	19	5	24	6.5	35	10	19	5
	9	17	4.5	18	5	25	7	32	9	47	13	25	7
	11	20	5.5	21	6	30	8.5	37	11	54	15	32	9
	13	24	7	26	7.5	36	10	45	13	68	19	36	10
	14	29	8	31	9	39	11	50	14	74	21	44	12
	15	29	8	31	9	42	12	54	15	81	23	44	12
	19	37	10	39	11	53	15	68	19	102	29	54	15
	23	44	12	45	13	62	18	79	23	120	34	63	18

The nominal capacity is based on:

1. Evaporating Temperature T_e=4.4℃; 2. Liquid Temperature Before Valve T_l=37℃;
3. Condensing Temperature T_c=38℃; 4. Static Superheat SS=4K; 5. Opening Superheat OS=4K.

Thermostatic Expansion Valve

Ordering

R134a: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection SAE Inlet x Outlet x Equalization [in.]	Code No.
TSBEN	3.5	1/2×5/8×1/4MIO	440080005200
	4.5	1/2×5/8×1/4MIO	440080005300
	4.5	3/8×1/2×1/4 MIO	440080005500
	4.5	1/2×5/8×1/4F	440080004300
	4.5	3/8×1/2×1/4F	440080004800
	6.5	3/8×1/2×1/4 MIO	440080005600
	6.5	1/2×5/8×1/4F	440080004400
	6.5	3/8×1/2×1/4F	440080004900
	9	1/2×5/8×1/4F	440080004300
	9	1/2×5/8×1/4MIO	440080005400
	9	3/8×1/2×1/4F	440080005000
	9	5/8×3/4×1/4MIO	440080005800
	11	1/2×5/8×1/4MIO	440080036300
	13	3/8×1/2×1/4F	440080005100
	13	5/8×3/4×1/4MIO	440080005900
	14	3/8×1/2×1/4 MIO	440080036400
	15	5/8×3/4×1/4MIO	440080006000
	19	5/8×3/4×1/4F	440080006100
	19	5/8×3/4×1/4MIO	440080004100
	23	5/8×3/4×1/4MIO	440080006300

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

Thermostatic Expansion Valve

Ordering

R134a: Opening Superheat = 4K, Range K

Model	Orifice No.	Connection SAE Inlet x Outlet x Equalization [in.]	Code No.
TSBEN	4.5	3/8×1/2×1/4F	440080006500
	4.5	3/8×1/2x1/4MIO	440080007200
	4.5	1/2×5/8×1/4MIO	440080007000
	6.5	3/8×1/2×1/4F	440080006600
	6.5	1/2×5/8×1/4F	440080006800
	6.5	1/2×5/8×1/4 MIO	440080007400
	9	3/8×1/2×1/4F	440080006700
	9	1/2×5/8×1/4F	440080006900
	9	5/8×3/4×1/4F	440080007700
	9	3/8×1/2x1/4MIO	440080007300
	9	1/2×5/8×1/4MIO	440080007100
	9	5/8×3/4×1/4MIO	440080007500
	11	3/8×1/2x1/4MIO	440080036500
	13	5/8×3/4×1/4F	440080007800
	13	5/8×3/4×1/4MIO	440080007600
	14	1/2×5/8×1/4F	440080036600
	15	5/8×3/4×1/4F	440080007900
	15	5/8×3/4×1/4MIO	440080008200
	19	5/8×3/4×1/4F	440080006200
	19	5/8×3/4×1/4MIO	440080004200
	23	5/8×3/4×1/4F	440080008100

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

Thermostatic Expansion Valve

Ordering

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

Model	Orifice No.	Connection SAE Inlet x Outlet x Equalization [in.]	Code No.
TSBES	3.5	1/2×5/8×1/4MIO	440080004500
	4.5	3/8×1/2×1/4 MIO	440080008300
	4.5	3/8×1/2×1/4 MIO	440080008600
	4.5	1/2×5/8×1/4F	440080008900
	4.5	3/8×1/2×1/4F	440080009100
	6.5	3/8×1/2×1/4 MIO	440080008700
	6.5	1/2×5/8×1/4F	440080009000
	6.5	3/8×1/2×1/4F	440080009200
	9	1/2×5/8×1/4MIO	440080008500
	9	3/8×1/2×1/4 MIO	440080008800
	9	3/8×1/2×1/4F	440080009300
	11	1/2×5/8×1/4MIO	440080036700
	13	3/8×1/2×1/4F	440080009400
	13	5/8×3/4×1/4MO	440080009600
	14	3/8×1/2×1/4MIO	440080036800
	15	5/8×3/4×1/4 MIO	440080009700
	19	5/8×3/4×1/4F	440080010000
	19	5/8×3/4×1/4MIO	440080009800
	23	5/8×3/4×1/4MIO	440080009900

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

Thermostatic Expansion Valve

Ordering

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

Model	Orifice No.	Connection SAE Inlet x Outlet x Equalization [in.]	Code No.
TSBES	4.5	3/8×1/2×1/4F	440080010100
	4.5	3/8×1/2x1/4MIO	440080010800
	4.5	1/2×5/8×1/4MIO	440080010600
	6.5	3/8×1/2×1/4F	440080010200
	6.5	1/2×5/8×1/4F	440080010400
	6.5	1/2×5/8×1/4 MIO	440080011000
	9	3/8×1/2×1/4F	440080010300
	9	1/2×5/8×1/4F	440080010500
	9	5/8×3/4×1/4F	440080011800
	9	3/8×1/2x1/4MIO	440080010900
	9	1/2×5/8×1/4MIO	440080010700
	9	5/8×3/4×1/4MIO	440080011600
	11	3/8×1/2x1/4MIO	440080036900
	13	5/8×3/4×1/4F	440080011900
	13	5/8×3/4×1/4MIO	440080011700
	14	1/2×5/8×1/4F	440080037000
	15	5/8×3/4×1/4F	440080011300
	15	5/8×3/4×1/4MIO	440080011100
	19	5/8×3/4×1/4F	440080011400
	19	5/8×3/4×1/4MIO	440080011200
	23	5/8×3/4×1/4F	440080011500

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

Thermostatic Expansion Valve

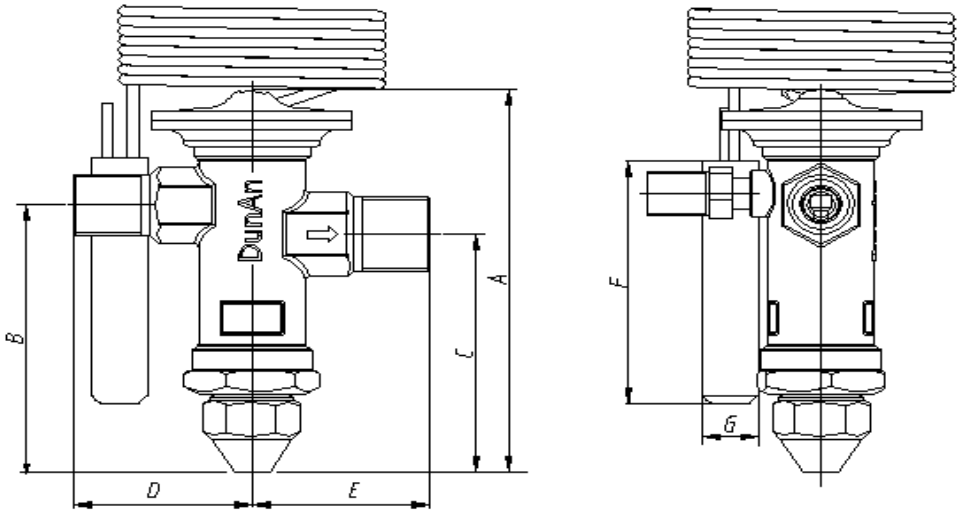
Ordering

R407C: Opening Superheat = 4K, Range N

Model	Orifice No.	Connection SAE Inlet x Outlet x Equalization [in.]	Code No.
TSBEZ	4.5	1/2×5/8×1/4MIO	440080035900
	6.5	1/2×5/8×1/4MIO	440080036000
	9	5/8×3/4×1/4MIO	440080036100
	13	5/8×3/4×1/4MIO	440080036200

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

Dimensions



Model	Connection Inlet × Outlet SAE	Capillary Lengths	A	B	C	D	E	F	G	Weight
	in.	m	mm	mm	mm	mm	mm	mm	mm	Kg
TSBE	3/8x1/2	1.5	97	67.5	60	40	40	62	Φ12.7	0.48
	1/2x5/8	1.5								
	5/8x3/4	1.5	107	74	65	40	44.5	75	Φ19	0.62

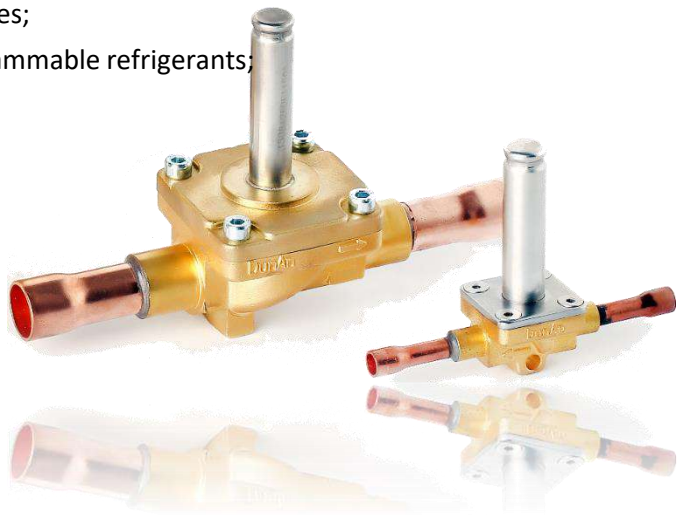
Solenoid Valve
FDF Series (Commercial)

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: R134a, R290, R407C, R410A, R404A, and R507
Media Temperature: -30°C~+105°C
Ambient Temperature: -20°C~+55°C
Applicable Relative Humidity: ≤95%
Max. 130°C during defrosting for max. 2h

Solenoid Valve

Model	Opening Pressure Difference of Solenoid Valve With Standard Coil			Ps	K_V (2)	Weight
	Min. Pressure Differential Min OPD [MPa]	Max. Pressure Differential [MPa] (1)				
		AC	DC	[MPa]	[m^3/h]	[kg]
FDF2A	0	3.1	1.8	4.5	0.16	0.4
FDF3A					0.27	
FDF6A	0.02				0.8	0.6
FDF10A					1.9	0.7
FDF15A				4.2	2.6	1.0
FDF20A					6.0	1.5
FDF22A					8.0	1.5
FDF25A	0.03				10.0	3.0
FDF32A					16.0	4.3
FDF40A					25.0	4.3

(1)MOPD for gaseous medium is about 0.1 MPa greater, for liquid medium is about 0.1 MPa lower.

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

Flow Unit: m^3/h; Density: 1000 kg/m^3.

Nominal Capacity

Model	Rated Capacity [kW]											
	Liquid Line				Suction Gas				Hot Gas			
	R134a	R404A / R507	R407C	R410A	R134a	R404A / R507	R407C	R410A	R134a	R404A / R507	R407C	R410A
FDF2A	2.9	2.2	3	3.4	-	-	-	-	1.2	1.2	1.5	1.7
FDF3A	5	3.8	5.1	5.8	-	-	-	-	2	2	2.4	3.0
FDF6A	15	11	15	17	1.3	1.6	1.7	2.2	5.9	6	7.2	8.8
FDF10A	35	27	36	40	3.1	3.9	4	5.3	14	14	17	21
FDF15A	48	37	49	55	4.2	5.3	5.4	7.2	19	20	23	28.6
FDF20A	107	80	109	121	9	12	12	15.4	43	44	52	56.1
FDF22A	138	105	142	160	12	15	15	19	55	56	68	72.9
FDF25A	186	141	189	215	16.3	20.4	21	27.8	73	75	90	110
FDF32A	297	225	303	345	26.1	32.6	33.6	44.7	117	120	144	176
FDF40A	464	351	473	535	40.8	51	52.4	69	183	188	224	275

1)Rated liquid and suction vapor capacity is based on evaporating temperature t_e =-10℃, liquid temperature ahead of valve t_l=25℃, pressure drop in valve △P=0.15 bar.

2)Rated hot gas capacity is based on condensing temperature t_c =40℃, pressure drop in valve △P=0.8 bar, hot gas temperature t_h =65℃, and subcooling of refrigerant $\triangle t_{sc}$=4K.

Solenoid Valve

Ordering

Flare Connection: NC (normally closed)

Model	SAE Connections			Actuation
	Connection Size		Code No.	
FDF2A-2001	1/4	6	320005008400	**Direct**
FDF3A-2001	1/4	6	320007000800	
FDF3A-2002	3/8	10	320007000900	
FDF6A-2001	3/8	10	320009005300	**Diaphragm**
FDF6A-2002	1/2	12	320009005400	
FDF10A-2001	1/2	12	320011001000	
FDF10A-2002	5/8	16	320011001100	
FDF15A-2001	5/8	16	320012001000	
FDF15A-2002	**7/8**	**22**	**320012001100**	

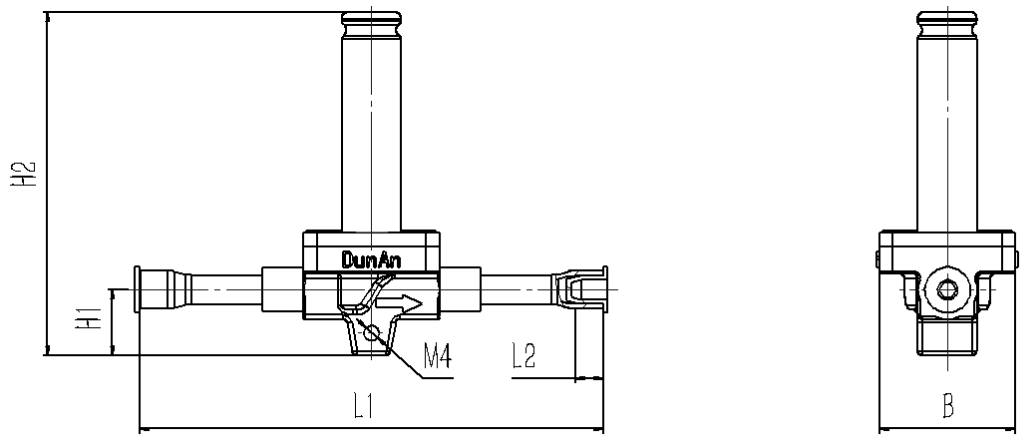
Solder Connection: NC (normally closed)

ODF Connection						
Model	Connection Size [In.]	Code NO.	Model	Connection Size [mm.]	Code No.	Actuation
FDF2A-1001	1/4	320005008100	FDF2A-1002	6	320005008300	**Direct**
FDF3A-1001	1/4	320007000100	FDF3A-1005	6	320007000500	
FDF3A-1002	3/8	320007000200	FDF3A-1006	10	320007000700	
FDF6A-1001	3/8	320009004900	FDF6A-1003	10	320009005100	**Diaphragm**
FDF6A-1002	1/2	320009005000	FDF6A-1004	12	320009005200	
FDF10A-1001	1/2	320011000300	FDF10A-1004	12	320011000900	
FDF10A-1002	5/8	320011000400	FDF10A-1002	16	320011000400	
FDF15A-1003	5/8	320012000200	FDF15A-1003	16	320012000200	
FDF15A-1004	3/4	320012000400	FDF15A-1004	19	320012000400	
FDF15A-1005	7/8	320012000500	FDF15A-1005	22	320012000500	
FDF20A-1001	3/4	320013003800	FDF20A-1001	19	320013003800	
FDF20A-1002	7/8	320013003900	FDF20A-1002	22	320013003900	
FDF20A-1003	9/8	320013004000	FDF20A-1005	28	320013004300	
FDF22A-1001	11/8	320014000100	FDF22A-1001	35	320014000100	
FDF25A-1001	9/8	320015000300	FDF25A-1003	28	320015000500	**Piston**
FDF25A-1002	11/8	320015000400	FDF25A-1002	35	320015000400	
FDF32A-1001	11/8	320016000100	FDF32A-1001	35	320016000100	
FDF32A-1002	13/8	320016000200	FDF32A-1002	42	320016000200	
FDF40A-1001	13/8	320017000600	FDF40A-1001	42	320017000600	
FDF40A-1002	17/8	320017000700	FDF40A-1002	54	320017000700	

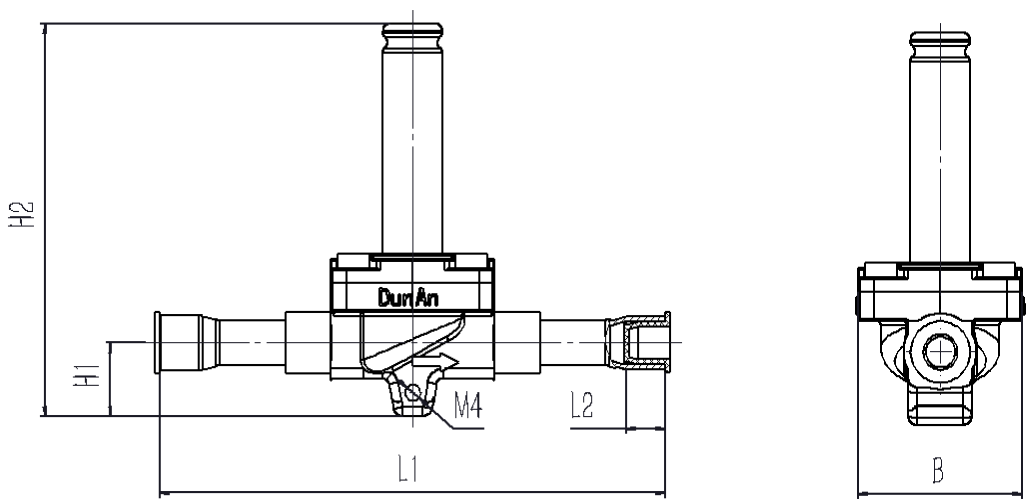
Solenoid Valve

Dimensions

Solder Connection

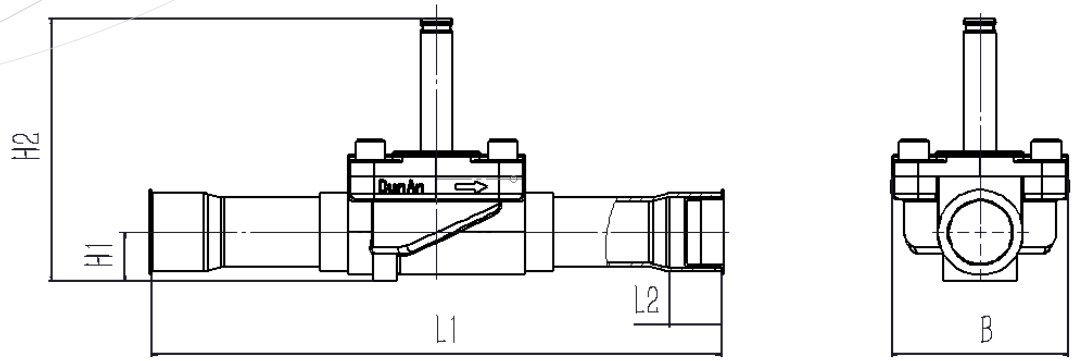


Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF2A	1/4	6	12	76	102	7	30
FDF3A	1/4	6	12	76	102	7	30
	3/8	10	12	76	108	9	30

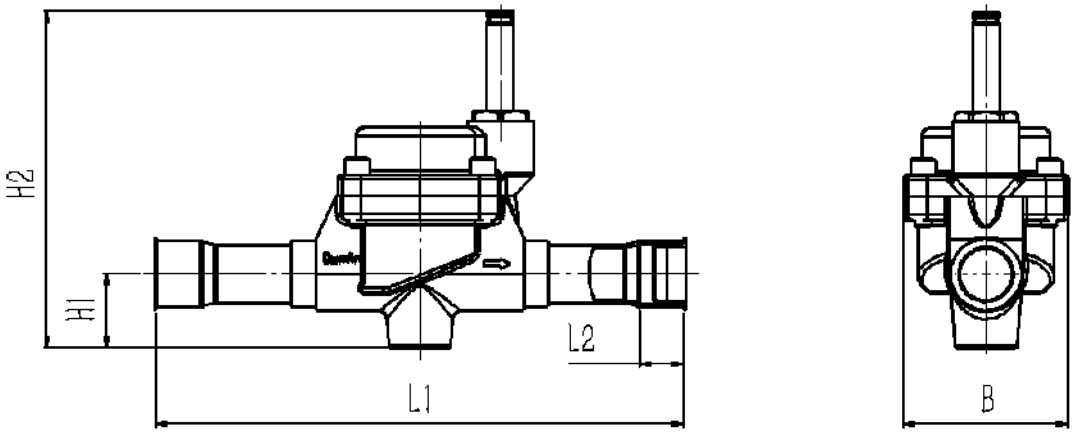


Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF6A	3/8	10	13	80	112	9	36
	1/2	12	13	80	128	10	36
FDF10A	1/2	12	17	95	128	10	46
	5/8	16	17	95	156	12	46

Solenoid Valve

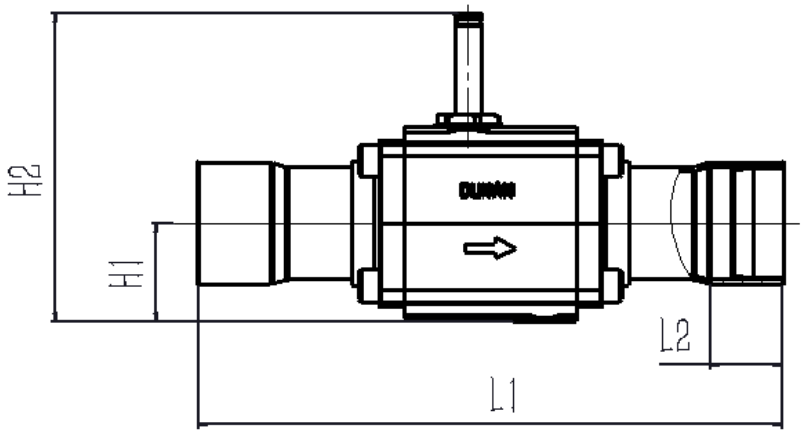


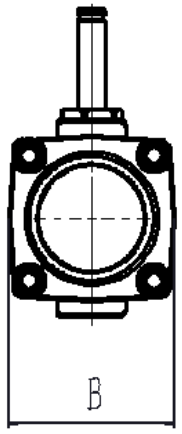
Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF15A	5/8	16	18	100	166	12	56
	3/4	19	18	100	166	17	56
	7/8	22	18	100	176	17	56
FDF20A	3/4	19	20	107	182	17	72
	7/8	22	20	107	182	17	72
	9/8	28	20	107	232	22	72
FDF22B	11/8	35	20	107	258	25	72



Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF25A	9/8	28	36	164	256	22	80
	11/8	35	36	164	281	25	80

Solenoid Valve

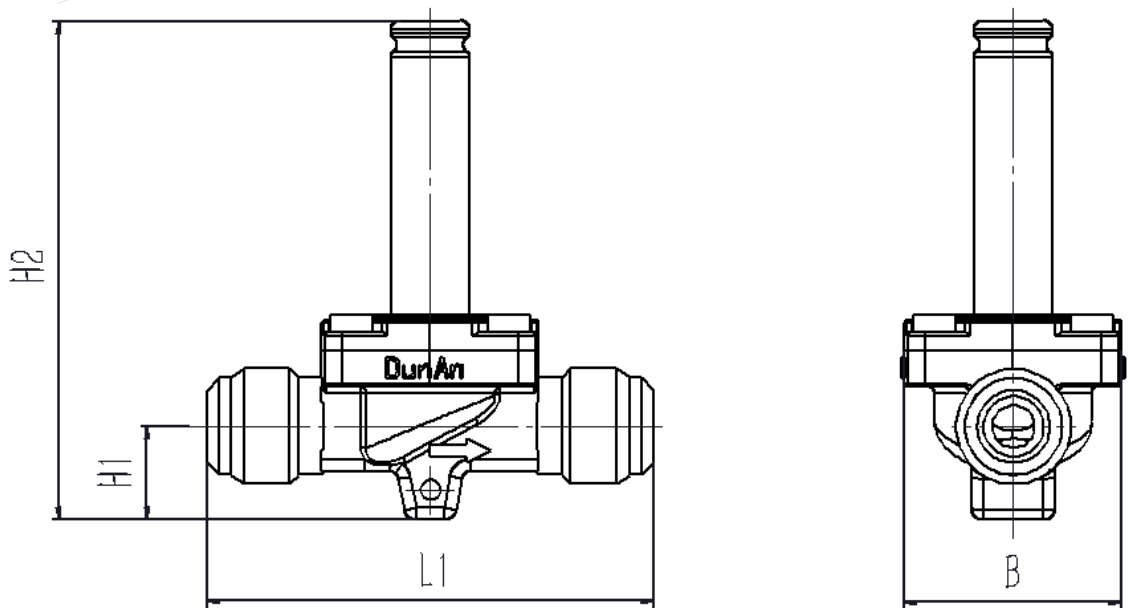




Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF32A	11/8	35	47.5	148	281	25	80
	13/8	42	47.5	148	281	28	80
FDF40A	13/8	42	47.5	148	281	28	80
	17/8	54	47.5	148	281	35	80

Solenoid Valve

Flare Connection



Model	Connection		H1	H2	L1	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF2A	1/4	6	12	76	58	30
FDF3A	1/4	6	12	76	58	30
	3/8	10	12	76	64	30
FDF6A	3/8	10	13	80	70	36
	1/2	12	13	80	74	36
FDF10A	1/2	12	17	95	86	46
	5/8	16	17	95	92	46
FDF15A	5/8	16	18	100	106	56
	7/8	22	18.0	100	106	56

Solenoid Valve

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]	Protection	Connection	Code
FDFX01-1003	380AC	50/60	IP65	DIN	335101000104
FDFX01-1002	220AC	50/60	IP65	DIN	335101000204
FDFX01-1001	110AC	50/60	IP65	DIN	335101000304
FDFX01-1004	24AC	50/60	IP65	DIN	335101000504
FDFX01-1007	110AC	50/60	IP65	DIN	335101001104
FDFX01-1006	36AC	50/60	IP65	DIN	335101000404
FDFX01-1011	265AC	50/60	IP65	DIN	335101001004
FDFX03-1001	12DC		IP65	DIN	335101010204
FDFX03-1002	24DC		IP65	DIN	335101000903

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, LVD or PED

Technical Data

Applicable Refrigerants: R134a, R290, R407C, R410A, R404A, and R507
Medium Temperature: -30°C~+120°C
Ambient Temperature: -30°C~+50°C
Applicable Relative Humidity: ≤95%

Solenoid Valve

Model	Version	Actuation	Port Size	K_V	Ps	OPD	
						Max	Min
			[mm]	[m^3/h]	[MPa]	[MPa]	[MPa]
FDF2A-010	N.C	Direct	2.0	0.08	4.2	3.4	0
FDF2.2A-010	N.C	Direct	2.2	0.13	4.2	2.1	0
FDF2.5A-010	N.C	Direct	2.5	0.16	4.2	2.1	0
FDF6A-010	N.C	Pilot	5.8	0.46	4.2	3.4	0.01

Nominal Capacity

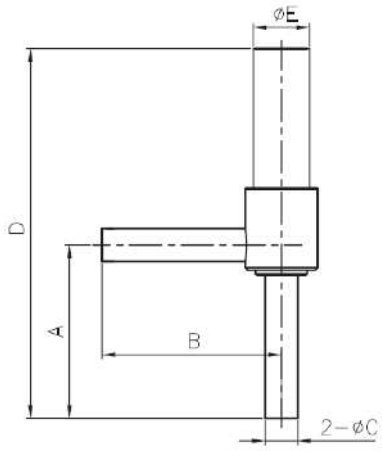
Model	Rated Capacity [kW]														
	Liquid Line					Suction Gas					Hot Gas				
	R134a	R290	R404A / R507	R407C	R410A	R134a	R290	R404A /R507	R407C	R410A	R134a	R290	R404A /R507	R407C	R410A
FDF2A-010	1.5	3.2	1.1	1.5	1.7	0.1	0.2	0.2	0.2	0.2	0.6	0.9	0.6	0.7	0.9
FDF2.2A-010	2.4	5.0	1.8	2.4	2.7	0.2	0.4	0.3	0.3	0.4	0.9	1.4	1	1.2	1.4
FDF2.5A-010	3.7	7.8	2.8	3.7	4.2	0.3	0.5	0.4	0.4	0.5	1.5	2.2	1.5	1.8	2.1
FDF6A-010	10.3	21.9	7.8	10.5	11.8	0.9	1.5	1.1	1.2	1.5	4.1	6.2	4.2	5	6

1) The working condition of liquid and suction gas Nominal cooling capacity: Evaporating Temp. T_e=-10℃; Liquid Temp. Before Valve: T_l=25℃; Pressure Drop After the Valve ΔP=0.015 MPa.

2) The working condition of hot gas Nominal cooling capacity: Condensing Temp. T_c=40℃; Pressure Drop Across the Valve ΔP=0.08 MPa; Hot Gas Temp. T_h=65℃; Subcooling ΔT_{sc}=4K

Solenoid Valve

Ordering & Dimensions



Model	Code	Connection Φ C	Dimensions			
			E	D	A	B
		[mm]	[mm]	[mm]	[mm]	[mm]
FDF2A-010	320005003800	6.35	10.9	72	33	35
FDF2.2A-010	320005003900	6.35	10.9	72	33	35
FDF2.5A-010	320006000500	6.35	11.3	72	33	35
FDF6A-010	320009003400	7.94	11.3	80	34.5	35.6

Coils

Model	Voltage	Frequency	Protection	Connection	Code	Valve
FDFX-046	100AC	50/60Hz	IP54	Cable with 0.6m	321013006700	FDF2A-010 FDF2.2A-010 F2.5A-010 FDF6A-010
FDFX-047	110AC	50/60Hz	IP54	Cable with 0.6m	321005011700	
FDFX-048	200AC	50/60Hz	IP54	Cable with 0.6m	321013006800	
FDFX-049	220AC	50/60Hz	IP54	Cable with 0.6m	321005009600	
FDFX-050	230AC	50/60Hz	IP54	Cable with 0.6m	321009000600	

Note: wire terminal, sheath, and length can be customized as per customer's requirement

Ball Valve
FQ Series

Application

FQ series ball valves are used in liquid line, suction line, and hot gas line 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 the tightness, and long lifetime;
- Bi-directional flow with low pressure drop;
- Small installation space required,

Approvals

UL, Declaration according to PED.

Technical Data

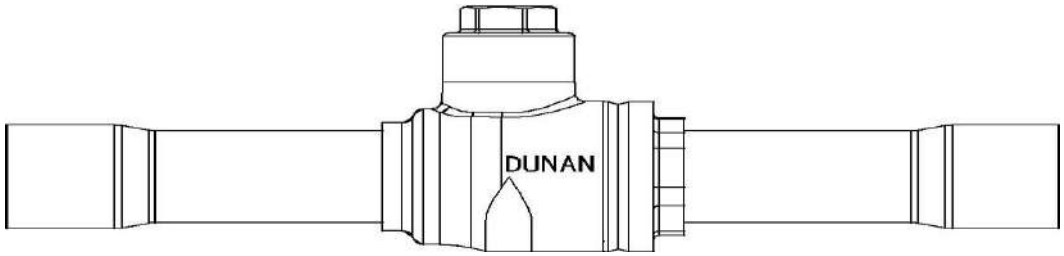
Applicable Refrigerants: R134a, R407C, R410A, R404A, R32 and R290
Medium Temperature: -30°C~120°C
Ambient Temperature: -20°C~ +60°C
Max. Operating Pressure: 4.9 MPa (DN4~DN32)
Max. Operating Pressure: 4.5 MPa (DN40~DN75)
Applicable Relative Humidity: ≤95%
Max. Leakage Rate < 2.83g/year

DUNAN
FQ Series

Ball Valve

Ordering

Without Access Port

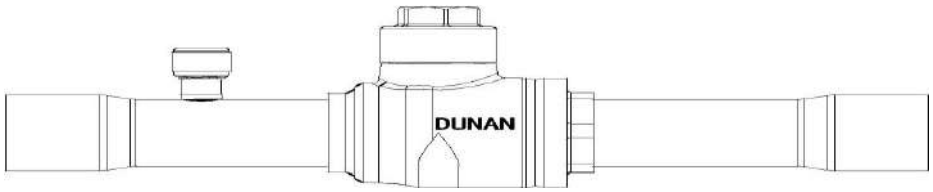


Model	ODF Connection				K_v Value [1] [m^3/h]
	Port Size [in.]	Code No.	Port Size [mm]	Code No.	
FQ-11X-DN4	1/4	380004011000	6	380004011200	0.89
FQ-11X-DN8	3/8	380008011000	10	380008011200	1.96
FQ-11X-DN10	1/2	380010011000	12	380010011200	5.3
FQ-11X-DN13	5/8	380013011000	16	380013011000	10.4
FQ-11X-DN15	3/4	380015011000	19	380015011000	15.7
FQ-11X-DN20	7/8	380020011000	22	380020011000	23.6
FQ-11X-DN25	9/8	380025011000	28	380025011200	43.8
FQ-11X-DN32	11/8	380032011000	35	380032011000	76.8
FQ-11X-DN40	13/8	380040011000	42	380040011200	98.5
FQ-11X-DN50	17/8	380050011000	54	380050011000	210.3
FQ-11X-DN65	21/8	380065011000	-	-	346.6
FQ-11X-DN75	25/8	380075011000	-	-	477.6

[1] K_v factor is defined as the cold-water flow in m^3/h under a pressure drop of 1 bar and valve completely open.
X = 0 stands for products in imperial units, whereas X = 2 for products in metic units.

Ball Valve

With Access Port



Model	ODF Connection				K_v Valve [1] [m^3/h]
	Port Size [in.]	Code No.	Port Size [mm]	Code No.	
FQ-11X-DN8	3/8	380008011600	10	380008011800	1.96
FQ-11X-DN10	1/2	380010011600	12	380010011800	5.3
FQ-11X-DN13	5/8	380013011600	16	380013011600	10.4
FQ-11X-DN15	3/4	380015011600	19	380015011600	15.7
FQ-11X-DN20	7/8	380020011600	22	380020011600	23.6
FQ-11X-DN25	9/8	380025011600	28	380025011800	43.8
FQ-11X-DN32	11/8	380032011600	35	380032011600	76.8
FQ-11X-DN40	13/8	380040011600	42	380040011800	98.5
FQ-11X-DN50	17/8	380050011600	54	380050011600	210.3
FQ-11X-DN65	21/8	380065011600	-	-	346.6
FQ-11X-DN75	25/8	380075011600	-	-	477.6

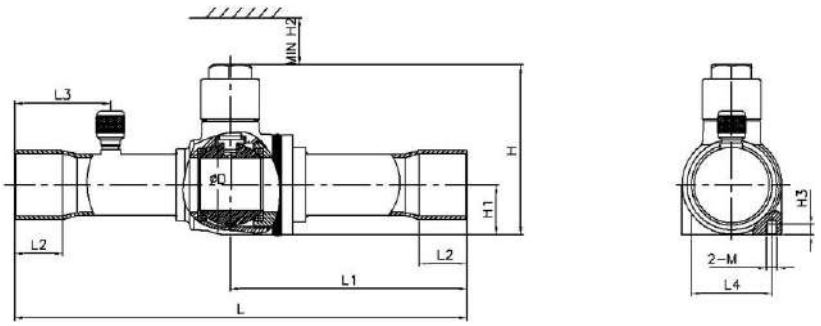
[1] K_v factor is defined as the cold-water flow in m^3/h under a pressure drop of 1 bar and valve completely open.
X = 6 stands for products in imperial units, whereas X = 8 for products in metic units.

DUN AN

FQ Series

Ball Valve

Dimensions



Without Access Port

Model	Connection Size		D	L	L1	L2	L3	L4	H	H1	H2	H3	Screw M
	[in]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DN4	1/4	6	10	155.1	82.9	8	-	16	52	16.5	21	5	M5×0.8
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	66	17	24	5	M5×08
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	-	32	251.5	132.7	25	-	43	91.6	30	28	5	M6×1.0
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	L	L1	L2	L3	L4	H	H1	H2	H3	Screw M
	[in]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DN8	3/8	10	10	138.5	74.6	10	29	16	52	16.5	21	5	M5×0.8
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	66	17	24	5	M5×08
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	251.2	132.7	25	52	43	91.6	30	28	5	M6×1.0
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

UL, Declaration according to PED

Technical Data

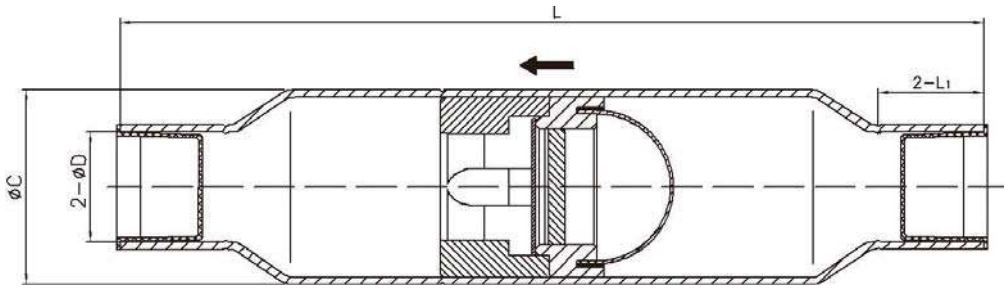
Applicable Refrigerants: R134a, R407C, R410A, R404A, and R290;
Medium Temperature: -30°C~+120°C

DunAn

FQ Series

Check Valve

Ordering and Dimensions



Model	Code No.	Connection	Dimensions			Max. Operating Pressure [MPa]	Pressure Drop Across Valve △P [MPa]	K_v [m^3/h]
		[in.]	C [mm]	L [mm]	L1 [mm]			
FDM 0702	260510000101	1/4	22.3	102	10	5	0.01	0.8
FDM 0703	260511000101	3/8	22.3	100	10	5	0.01	0.9
FDM 0904	260512000101	1/2	28,5	127	14	5	0.01	2.9
FDM 0905	260513000101	5/8	28,5	127	15.5	5	0.01	3.1
FDM 0906	260514000101	3/4	28,5	127	14	4.5	0.01	3.2
FDM 0907	260523000101	7/8	28,5	127	18	4.5	0.01	3.5
FDM 1107	260515000101	7/8	35	178	15	4.5	0.01	6.1
FDM 1406	260524000101	3/4	41	178	18	4.5	0.02	6.8
FDM1407	260533000101	7/8	41	178	21	4.5	0.02	7.2
FDM 1409	260516000101	9/8	41	206	18	4.5	0.02	7.8
FDM 1709	260517000101	9/8	54	213	25.5	4.5	0.02	17.9
FDM 2111	260518000101	11/8	67	238	26	3.5	0.02	20.4
FDM 2113	260519000101	13/8	80	267	28	3.5	0.03	20.7
FDM 2817	260520000101	17/8	92	305	34	3.5	0.05	33.0
FDM 3321	260521000101	21/8	105	330	38	3.5	0.05	61.4
FDM 3325	260522000101	25/8	105	330	38	3.5	0.05	/

Check Valve
CV Series

Application

CV 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

UL, Declaration according to PED

Technical Data

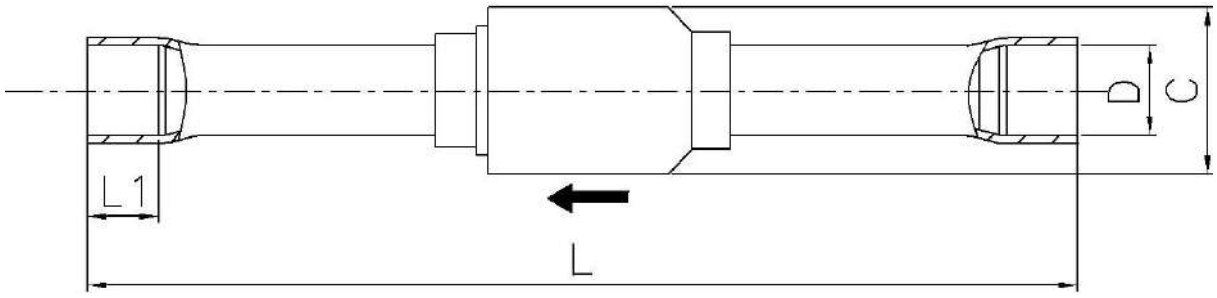
Applicable Refrigerant: R134a, R407C, R410A, R404A, R290, and R32;
Max. Operating Pressure: 4.9 MPa
Medium Temperature: -40°C~+150°C

DunAn

CV Series

Check Valve

Ordering and Dimensions



Model	Code No.	Dimensions				K_v	Min. OPD
		C	D	L	L_1		
		[mm]	[mm]	[mm]	[mm]	[m^3/h]	[bar]
CV12S	260610000501	22	12.75	131	10	2.05	0.05
CV16S	260527000101	28	16.1	140	16	3.0	0.05
CV19S	260610001801	34	19.25	165	14	5.5	0.05

The K_v value is the water flow at a differential pressure of 0.1 MPa.
Flow Unit: m^3/h; Density: 1000 kg/m^3.

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

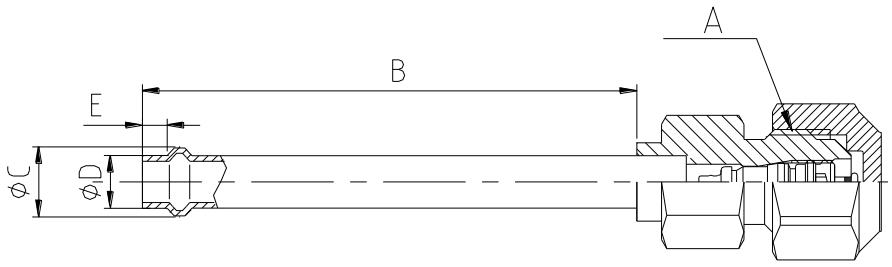
Applicable Refrigerant: R134a, R407C, R410A, R32, and R404A, R290
Applicable Relative Humidity: ≤95%
Medium Temperature: -30°C~+120°C
Ambient Temperature: -30°C~+70°C
Max. Operating Pressure: 4.5 MPa

DunAn

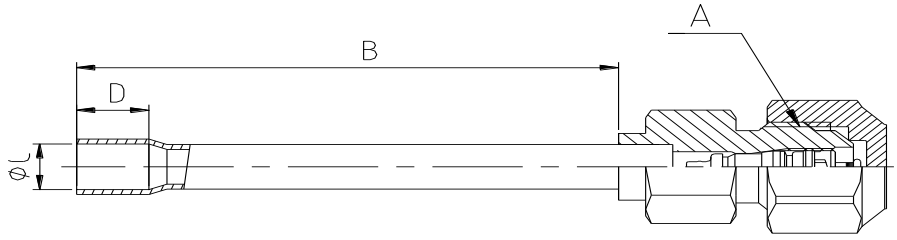
FJT Series

Charge Valve

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-8881-DG4	280004888100	6.35	1/4	1/2-20 UNF	60	8.5	3	R32, R410A, R290 R407C, R134a, R404A
FJT-8883-DG4	280004888300	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-8884-DG4	280004888400	6.5	1/4	1/2-20 UNF	60	8	R32, R410A, R290 R407C, R134a, R404A
FJT-8886-DG4	280004888600	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

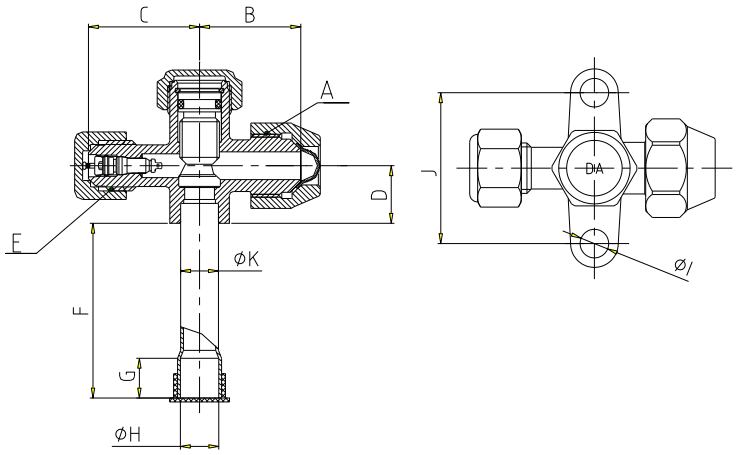
Applicable Medium: R134a, R407C, R410A, R32, R404A and R290
Applicable Relative Humidity: ≤95%
Medium Temperature: -30°C~+120°C
Ambient Temperature: -30°C~+70°C
Max. Operating Pressure:4.5 MPa

DunAn

FJ Series

Service Valve

Ordering and Dimensions



Model	Code No.	Port [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E Flare[in.]	F [mm]	G [mm]	Applicable Refrigerant
FJ-8888-DG4	280004888800	4.8	7/16-20UNF	24	-	14	1/2-20UNF	60	8	R410A R32 R290 R407C R134a R404A
FJ-8888-DG8	280008888800	7	5/8-18UNF	25.5	28	14.5		60	10	
FJ-8888-DG10	280010888800	10	3/4-16UNF	30	28	16		60	10	
FJ-8888-DG13	280013888800	13	7/8-14UNF	34.5	28.5	17		60	15	
FJ-8888-DG16	280016888800	16	17/16-14UNS	38.5	30	22.5		60	15	
FJ-8887-DG4	280004888700	4.8	7/16-20UNF	24	-	14	7/16-20UNF	60	8	
FJ-8887-DG8	280008888700	7	5/8-18UNF	25.5	28	14.5		60	10	
FJ-8887-DG10	280010888700	10	3/4-16UNF	30	28	16		60	10	
FJ-8887-DG13	280013888700	13	7/8-14UNF	34.5	28.5	17		60	15	
FJ-8887-DG16	280016888700	16	17/16-14UNS	38.5	30	22.5		60	15	

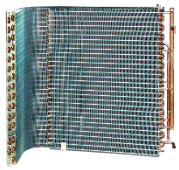
(continued)

Model	Code No.	H [mm]	I [mm]	J [mm]	K [mm]	Capacity [kW]	Applicable Refrigerant
FJ-8888-DG4	280004888800	6.5	7.2	38	6.35	1.6~4.1	R410A R32 R290 R407C R134a R404A
FJ-8888-DG8	280008888800	9.7	7.2	38	9.52	2.1~8	
FJ-8888-DG10	280010888800	12.9	7.2	38	12.7	6.2~16.1	
FJ-8888-DG13	280013888800	16.1	7.2	38	15.88	9.8~25.4	
FJ-8888-DG16	280016888800	19.2	7.2	44	19	15.2~39.2	
FJ-8887-DG4	280004888700	6.5	7.2	38	6.35	1.6~4.1	
FJ-8887-DG8	280008888700	9.7	7.2	38	9.52	2.1~8	
FJ-8887-DG10	280010888700	12.9	7.2	38	12.7	6.2~16.1	
FJ-8887-DG13	280013888700	16.1	7.2	38	15.88	9.8~25.4	
FJ-8887-DG16	280016888700	19.2	7.2	44	19	15.2~39.2	

CO_2 (R744) Products

EEV

SV



Heat exchanger

CV

Application

Heat pump

Vending machines

Frozen storage

Dunan-CO_2 special high pressure accessories:

- Can meet the requirements of different fields
- Applicable in subcritical and transcritical systems
- New developments for CO_2 system

CO_2 Electronic Expansion Valve
DPF(E) Series

Application

DPF(E) Series electronic expansion valve is designed for application CO_2 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 (CO_2) + 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: ≤ 600mL/min (except EEV without shut off function)
Uni-directional flow
Life Cycle: ≥ 50,000

CO_2 Electronic Expansion Valve

Specification

Model	Orifice Φ [mm]	Nominal Capacity [1] [kW]	Max. Operating Pressure [MPa]	MOPD [MPa]	Connection [mm]
DPF(E)1.0D	1.0	5.0	14	10	6.35
DPF(E)1.2D	1.2	6.9			
DPF(E)1.4D	1.4	9.0			
DPF(E)1.8D	1.8	15.5			
DPF(E)2.0D	2.0	20.2			
DPF(E)2.4D	2.4	29.3			

[1] Normal capacities are based on:

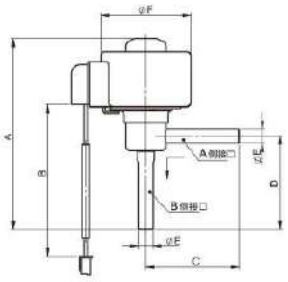
1. Gas cooler outlet temperature T_c=22℃; 2. Gas cooler outlet pressure P_c=10MPa;
3. Evaporating Temperature T_e=6℃; 4. Superheating $\triangle T_{sh}$=0K

The above specifications can be bulk supply, and can be customized according to customers' requirements

Coil Parameters

Model	DPFX07
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℃)
Current	260mA/phase (20℃)
Wire Number	6
Protection Class	IP54

Dimensions



Model	A	B	C	D	E	F
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DPF(E) 1.0D – 2.4D	80	700	37	37	6.35	38

Note:

Valve dimensions could be customized

CO_2 Solenoid Valve
RDF 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 CO_2 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 (CO_2) + PAG oil
Relative Humidity: ≤95%
Medium Temperature: -30°C~+120°C
Ambient Temperature: -30°C~+55°C
Max. Operating Pressure: 14.0 MPa
Internal Leakage: ≤ 50mL/min
NC (normally closed), angleway, uni-directional flow
Life Cycle: ≥ 100,000

CO_2 Solenoid Valve

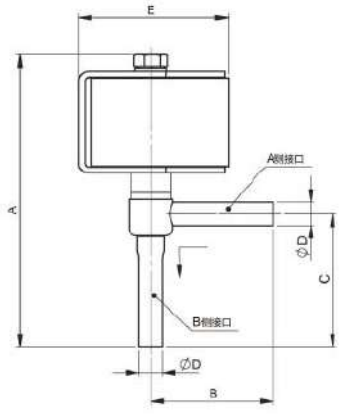
Specification

Model	Orifice Φ [mm]	Min. OPD [MPa]	MOPD [MPa]	Max. Operating Pressure [MPa]	K_V [m^3/h]	Connection [mm]
RDFA1.0S	1.0	0	10	14	0.024	6.35
RDFA1.2S	1.2	0	10	14	0.033	6.35

Coil

Model	Nominal Voltage [V]	Voltage range	Frequency [Hz]	Power [W]	Insulation Class	Protection Class	Connection Type
CDFX-101	DC 12	90% ~ 110%	-	9	B	IP67	wire
CDFX-102	DC 24						
FDFX-046	AC 100	85% ~ 110%	50/60	7/5			
FDFX-047	AC 110						
FDFX-048	AC 200						
FDFX-0137	AC 220						
FDFX-050	AC 230						

Dimensions



Model	A	B	C	D	E
	[mm]	[mm]	[mm]	[mm]	[mm]
RDFA1.0S—1.2S	80	35	36	6.35	41

Note:
Valve dimensions could be customized.

CO_2 Check Valve
CV(B) Series

Application

The main function of CV(B) 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 (CO_2) + PAG oil
Relative Humidity: ≤95%
Medium Temperature: -30°C~+120°C
Ambient Temperature: -30°C~+120°C
Max. Operating Pressure: 14.0 MPa
Internal Leakage: ≤ 100mL/min
Straightway
Life Cycle: ≥ 50,000

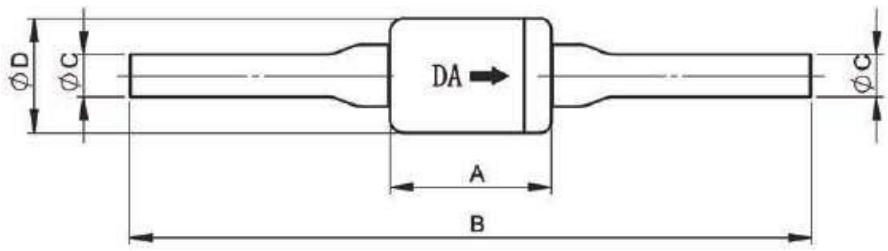
CO_2 Check Valve

DunAn
CV(B) Series

Specification

Model	Orifice Φ [mm]	Min. OPD [MPa]	Max. Operating Pressure [MPa]	MOPD [MPa]	Burst Pressure [MPa]	K_v [m^3/h]	Connection [mm]
CV(B)-6S	4.0	0.04	14	10	42	0.40	6.35
CV(B)-8S	5.5	0.04	14	10	42	0.66	7.94
CV(B)-10S	7.0	0.04	14	10	42	1.04	9.52

Dimensions



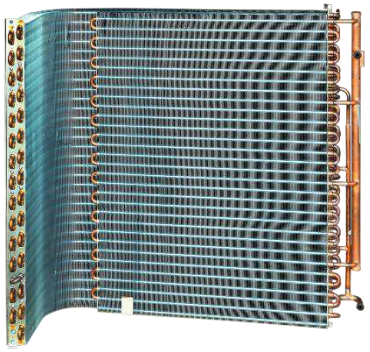
Model	A	B	C	D
	[mm]	[mm]	[mm]	[mm]
CV(B)-6S	25	105	6.35	17.3
CV(B)-8S			7.94	17.3
CV(B)-10S			9.52	18.4

Note:
Valve dimensions could be customized.

CO_2 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 CO_2, which could work either in heating or cooling mode. Inner grooved tubes of diameter Φ5mm and Φ7mm are highlights of this innovated product, which are mainly for residential and light commercial units respectively.



Features

- Φ5mm and Φ7mm inner micro-grooved copper tubes specially for CO_2 application;
- Diversity of fin patterns meets various requirements
- 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 (CO_2) + PAG oil
Relative Humidity: ≤95%
Medium Temperature: -30°C~+120°C
Ambient Temperature: -30°C~+70°C
Max. Operating Pressure:≤9.0 MPa

Mould Information

Tube Diameter [mm]	Tube Vertical Spacing [mm]	Tube Horizontal Spacing [mm]	Fin Pattern	Fin Pitch [mm]
Φ 5	19.05	16.5	Louvered / Corrugated / Flat	1.2 ~ 3.5
Φ 7	21	12.7	Lanced, Louver, Flat	1.2 ～ 2.2
Φ 7	21	18.2	Louver, Corrugated, Flat	1.2 ～ 3.0
Φ 7	19.05	16.5	Flat / Corrugated / Split	1.2 ~ 2.2

Note:
Customization is possible.

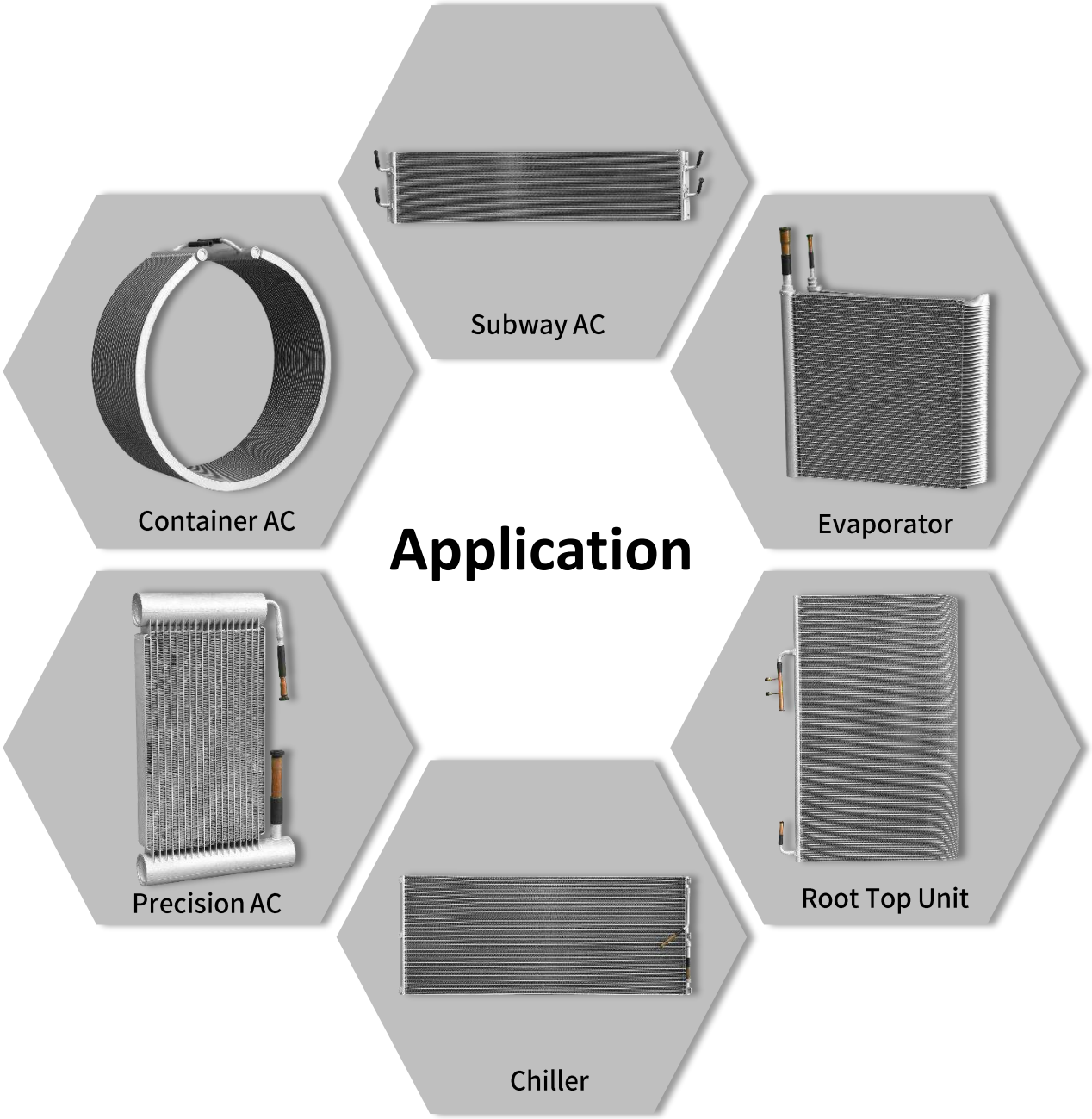
Tube-Fin Heat Exchanger

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, 60º Inclined Cut	1.3 ~ 4.0
7	Φ 7	25	12.5	Corrugated, Flat, Louver, 45º 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 ,43º 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, 60º 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, 60º 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

Application



Micro-Channel Heat Exchanger

Mould Information

Header	Tube	Fin	Pitch [mm]	Remarks
OD × Thickness [mm]	Width × Height [mm]	Height [mm]		
16×1.2	12×1.4	8	1.1, 1.2, 1.3	
20×1.5	16×1.3	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	
	16×1.3	11.4	1.1, 1.2, 1.3	
	16×1.4	8	1.1, 1.2, 1.3, 1.4	
	16×2	8	1.1, 1.2, 1.3, 1.4	
	16×1.8	8	1.1, 1.2, 1.3, 1.4	
	16×1.8	6.8	1.3, 1.4, 1.5	
	16×1.8	-	-	Heat Pump Water Heater (without fins)
	25.4×2	-	-	Heat Pump Water Heater (without fins)
20×1.2	16×1.3	5.2	1.1, 1.2, 1.3	
20×2.05	25.4×2	-	-	Heat Pump Water Heater (without fins)
23×1.7	18×1.3	11.4	1.1, 1.2, 1.3	
25×1.5	20×2	8.1	1.1, 1.2, 1.3, 1.5, 1.6, 1.7	
26×1.9	16×1.3	8.08	1.1, 1.2, 1.3	
	16×1.3	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	
	20.6×1.3	8.1	1.1, 1.2, 1.3	
32×2.5	25.4×1.3	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	
	25.4×1.3	7.62	1.1, 1.2, 1.3	
	25.4×2	8.08	1.1, 1.2, 1.25	
	25.4×2	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	
	20.6×1.3	8.1	1.7, 1.8, 1.9	
	18×1.3	7.62	1.1, 1.2, 1.3	
32×2.3	25.4×1.3	6.5	1.2, 1.3, 1.4	
38×2.5	32×2.0	8.1	1.2, 1.3, 1.4	
38×2.2	32×1.3	6.5	1.2, 1.3, 1.4	
	32×1.3	8.1	1.2, 1.3, 1.4	
	25.4×1.3	8.1	1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9	
43.5×2.85	32×1.3	8.1	1.2, 1.3, 1.4	
45×2.85	38×1.8	9	1.2, 1.3	

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