

INTELLIGENT FLOW CONTROL SOLUTIONS IN HVAC&R



Standard Catalogue
for Europe

Dun An

Content

4-Way Reversing Valve

DSF Series	1
DRVB Series.....	14

Electronic Expansion Valve

DPF Series	17
------------------	----

Thermostatic Expansion Valve

TA Series	22
TI Series.....	29
TCE/TCBE Series	34
TCCE Series	47

Solenoid Valve

FDF Series(Commerical)	55
FDF Series(Residention).....	63

Ball Valve

FQ Series	66
-----------------	----

Filter Drier

DQA/DZA Series	70
DQB/DZB Series	79

Check Valve

FDM Series	81
CV Series	85

Charge Valve

FJT Series	87
------------------	----

Service Valve

FJ Series	89
CO2 (R744) Products	91

CO2 Electronic Expansion Valve

DPF(E) Series	92
---------------------	----

CO2 Solenoid Valve

RDF Series	94
------------------	----

CO2 Check Valve

CV(B) Series	99
--------------------	----

CO2 Tube Fin Heat Exchanger	98
--	----

Tube-Fin Heat Exchanger	99
--------------------------------------	----

Micro-Channel Heat Exchanger	101
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4-Way Reversing Valve

DSF 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 potentially explosive conditions
- DSF(S) stainless steel material usage reduces heat loss and improves efficiency
- Available with special design configuration for systems of heating mode as main function
- Built-in chip energy-saving coil on request

Approvals

Declaration 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

Brass DSF Series

Model	Code No.	Port	Kv	Connection		Operating Pressure Difference	
				D	E, S, C	Max.	Min.
		[mm]	[m ³ /h]	[in.]	[in.]	[MPa]	[MPa]
DSF-4	240004020600	8	1.7	5/16	3/8	3.1(R410A/R32) 2.45(R134a/R407C/ R404A) 2.5 (R290)	0.25
DSF-9	240009083200	11.1	3.0	3/8	1/2		0.3 0.25 (R290)
DSF-9B	240009084300	11.1	3.0	3/8	5/8		
DSF-9E	240009084400	11.1	3.0	3/8	1/2		
DSF-9I	240009089700	11.1	3.0	3/8	1/2		
DSF-11	240011029800	11.5	3.6	1/2	5/8		
DSF-11B	240011026700	11.5	3.6	1/2	5/8		
DSF-14	240015000400	13.5	6.5	1/2	7/8		
DSF-14B	240015000500	13.5	6.5	1/2	3/4		
DSF-20	240020035800	15.5	7.2	1/2	3/4		
DSF-20-LNX	240020039400	15.5	7.2	1/2	3/4		
DSF-20K-LNX	240020039500	15.5	7.2	1/2	7/8		
DSF-20D	240020037700	15.5	7.2	5/8	7/8		
DSF-20F	240020037900	15.5	7.2	3/4	7/8		
DSF-20N	240020054500	15.5	7.2	1/2	3/4		
DSF-20-P	240020038000	17.2	9.2	1/2	3/4		
DSF-34C	240034023700	19.2	12.3	5/8	7/8		
DSF-34D	240034021700	19.2	12.3	7/8	9/8		
DSF-34H	240034021800	19.2	12.3	3/4	7/8		
DSF-34S	240034023800	19.2	12.3	1/2	7/8		
DSF-38	240038004500	23	13.4	7/8	9/8		
DSF-50	240050007200	24	13.9	7/8	9/8		
DSF-50-KLMT	240050009900	25.6	13.9	9/8	11/8		
DSF-70	240070004500	26	28.7	1	5/4		
DSF-105	240010003100	34.5	39.1	5/4	3/2		
DSF-140	240014001900	41	58.5	3/2	7/4		
DSF-180	240018001500	46.4	70.4	3/2	17/8		
DSF-210	240021000800	50	80.2	2	21/8		

Stainless Steel DSF(S) Series

Model	Code No.	Port	Kv	Connection		Operating Pressure Difference	
				D	E, S, C	Max.	Min.
		[mm]	[m³/h]	[in.]	[in.]	[MPa]	[MPa]
DSF(S)-4	240004027300	8	1.7	5/16	3/8	3.1(R410A/R32); 2.45(R134a/R407C/R404A) 2.5 (R290)	0.3 0.25 (R290)
DSF(S)-9	240009084600	11.1	3.0	3/8	1/2		
DSF(S)-9E-D	240009092000	11.5	3.6	3/8	1/2		
DSF(S)-20P-B	240020054600	15.5	7.2	1/2	3/4		
DSF(S)-20P-C	240020054700	15.5	7.2	1/2	3/4		
DSF(S)-20-B	240020054800	15.5	7.2	1/2	3/4		
DSF(S)-20-C	240020054900	15.5	7.2	1/2	3/4		
DSF(S)-34P-B	240034031300	19.2	12.3	3/4	7/8		
DSF(S)-34P-C	240034031400	19.2	12.3	3/4	7/8		
DSF(S)-34-B	240034031100	19.2	12.3	3/4	7/8		
DSF(S)-34-C	240034031200	19.2	12.3	3/4	7/8		

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-1129 ^[2]	244409112900	Spade	-	DC	24	-	≤ 9		
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-670-EUR ^[2]	244409067002	Wire	1200	AC	208-240	50/60	≤ 7.5		
DXQ-822 ^[2]	244409082252	Wire	1000	AC	220-240	50/60	≤ 7.5		
DXQ-648 ^[2]	244409064811	Wire	1000	DC	24	-	≤ 9		
DXQ-901	244409090102	Wire	1500	DC	35	-	≤ 9		
DXQ-717 ^{[1] [2]}	244409071703	Wire	420	AC	100	50/60	≤ 18		
DXQ-417 ^{[1] [2]}	244409041702	Wire	400	AC	200	50/60	≤ 18		

Note:^[1] Bi-Stable type;

^[2] Application under potentially explosive conditions approved.

Capacity Table

Model	Capacity [kW]																							
	Pressure Drop ΔP [bar]																							
	R134a				R404A				R407C				R410A				R32				R290			
	Cond.1		Cond. 2		Cond. 1		Cond. 2		Cond. 1		Cond. 2		Cond. 1		Cond. 2		Cond.1		Cond.2		Cond.1		Cond.2	
	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	3.1	4.3	2.9	4.0	3.4	4.8	2.9	4.2	3.7	5.3	3.4	4.8	4.8	6.8	4.3	6.1	6.2	8.7	5.8	8.2	4.8	6.8	4.4	6.3
DSF-9	5.8	8.3	5.4	7.7	6.4	9.1	5.6	7.9	7.1	10.0	6.5	9.2	9.1	12.9	8.2	11.6	11.8	16.6	11.0	15.5	9.2	13.0	8.5	12.0
DSF-9B	5.8	8.3	5.4	7.7	6.4	9.1	5.6	7.9	7.1	10.0	6.5	9.2	9.1	12.9	8.2	11.6	11.8	16.6	11.0	15.5	9.2	13.0	8.5	12.0
DSF-9E	5.8	8.3	5.4	7.7	6.4	9.1	5.6	7.9	7.1	10.0	6.5	9.2	9.1	12.9	8.2	11.6	11.8	16.6	11.0	15.5	9.2	13.0	8.5	12.0
DSF9I	5.8	8.3	5.4	7.7	6.4	9.1	5.6	7.9	7.1	10.0	6.5	9.2	9.1	12.9	8.2	11.6	11.8	16.6	11.0	15.5	9.2	13.0	8.5	12.0
DSF-11	7.4	10.5	6.9	9.7	8.2	11.5	7.1	10.0	9.0	12.7	8.3	11.7	11.6	16.4	10.4	14.7	14.9	21.1	13.9	19.7	11.7	16.5	10.7	15.2
DSF-11B	7.4	10.5	6.9	9.7	8.2	11.5	7.1	10.0	9.0	12.7	8.3	11.7	11.6	16.4	10.4	14.7	14.9	21.1	13.9	19.7	11.7	16.5	10.7	15.2
DSF-14	10.6	15	9.6	13.5	13.2	18.6	11	15.6	12.2	17.4	10.8	15.4	15.7	29.3	13.6	19.2	20.2	37.8	18.2	25.7	15.8	29.5	14.0	19.7
DSF-14B	10.6	15	9.6	13.5	13.2	18.6	11	15.6	12.2	17.4	10.8	15.4	15.7	29.3	13.6	19.2	20.2	37.8	18.2	25.7	15.8	29.5	14.0	19.7
DSF-20	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF-20-LNX	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF-20K-LNX	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF-20D	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF-20F	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF-20N	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF-20-P	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF-34C	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8
DSF-34D	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8
DSF-34H	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8
DSF-34S	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8
DSF-38	35.0	49.4	32.5	45.9	38.4	54.4	33.5	47.4	42.5	60.1	39.1	55.2	54.6	77.2	49.2	69.6	70.4	99.5	65.7	93.0	55.0	77.8	50.6	71.5
DSF-50	38.5	54.5	35.8	50.6	42.4	59.9	36.9	52.2	46.8	66.2	43.1	60.9	60.1	85.1	54.2	76.7	77.5	109.7	72.5	102.5	60.6	85.7	55.7	78.8
DSF-50-KLMT	38.5	54.5	35.8	50.6	42.4	59.9	36.9	52.2	46.8	66.2	43.1	60.9	60.1	85.1	54.2	76.7	77.5	109.7	72.5	102.5	60.6	85.7	55.7	78.8
DSF-70	46.2	65.4	43.0	60.8	50.9	71.9	44.3	62.6	56.2	79.4	51.7	73.1	72.2	102.1	65.0	92.0	93.0	131.6	87.0	123.0	72.7	102.9	66.9	94.6
DSF-105	75.8	107.1	70.4	99.6	83.3	117.8	72.6	102.6	92.0	130.2	84.7	119.7	118.3	167.3	106.6	150.7	152.5	215.6	142.5	201.5	119.2	168.6	109.6	155.0
DSF-140	102.8	145.4	95.6	135.1	113.1	159.9	98.5	139.3	124.9	176.6	114.9	162.5	160.5	227.0	144.6	204.6	206.9	292.6	193.4	273.4	161.7	228.7	148.7	210.3
DSF-180	131.4	185.8	122.1	172.7	144.5	204.3	125.8	177.9	159.6	225.7	146.8	207.6	205.1	290.0	184.8	261.4	264.4	373.9	247.1	349.4	206.7	292.3	190.0	268.7
DSF-210	149.6	211.6	139.0	196.6	164.5	232.7	143.3	202.6	181.7	257.0	167.2	236.4	233.6	330.3	210.5	297.7	301.1	425.8	281.4	397.9	235.4	332.9	216.4	306.0

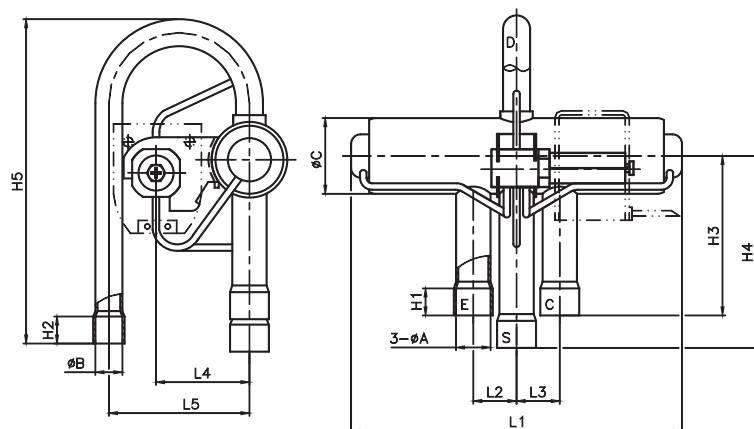
Note: 1. Cond.1: $T_c=38^\circ\text{C}$, $T_e=5^\circ\text{C}$, $\Delta T_{sh}=5\text{K}$, $\Delta T_{sc}=0\text{K}$; 2. Cond.2: $T_c=54.4^\circ\text{C}$, $T_e=7.2^\circ\text{C}$, $\Delta T_{sh}=5\text{K}$, $\Delta T_{sc}=5\text{K}$

Model	Capacity [kW]																							
	Pressure Drop ΔP [bar]																							
	R134a				R404A				R407C				R410A				R32				R290			
	Cond.1		Cond. 2		Cond. 1		Cond. 2		Cond. 1		Cond. 2		Cond. 1		Cond. 2		Cond.1		Cond.2		Cond.1		Cond.2	
	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	3.1	4.3	2.9	4.0	3.4	4.8	2.9	4.2	3.7	5.3	3.4	4.8	4.8	6.8	4.3	6.1	6.2	8.7	5.8	8.2	4.8	6.8	4.4	6.3
DSF(S)-9	5.8	8.3	5.4	7.7	6.4	9.1	5.6	7.9	7.1	10.0	6.5	9.2	9.1	12.9	8.2	11.6	11.8	16.6	11.0	15.5	9.2	13.0	8.5	12.0
DSF(S)-9E-D	7.4	10.5	6.9	9.7	8.2	11.5	7.1	10.0	9.0	12.7	8.3	11.7	11.6	16.4	10.4	14.7	14.9	21.1	13.9	19.7	11.7	16.5	10.7	15.2
DSF(S)-20P-B	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF(S)-20P-C	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF(S)-20-B	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF(S)-20-C	13.9	19.7	12.9	18.3	15.3	21.6	13.3	18.8	16.9	23.9	15.5	22.0	21.7	30.7	19.6	27.7	28.0	39.6	26.2	37.0	21.9	31.0	20.1	28.5
DSF(S)-34P-B	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8
DSF(S)-34P-C	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8
DSF(S)-34-B	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8
DSF(S)-34-C	25.3	35.8	23.5	33.3	27.9	39.4	24.3	34.3	30.8	43.5	28.3	40.0	39.5	55.9	35.6	50.4	51.0	72.1	47.6	67.4	39.8	56.3	36.6	51.8

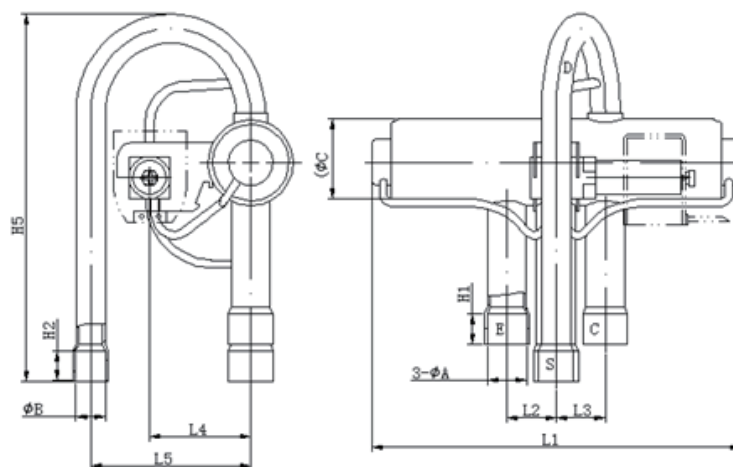
Note: 1. Cond.1: $T_C=38^\circ\text{C}$, $T_E=5^\circ\text{C}$, $\Delta T_{sh}=5\text{K}$, $\Delta T_{sc}=0\text{K}$;
 2. Cond.2: $T_C=54.4^\circ\text{C}$, $T_E=7.2^\circ\text{C}$, $\Delta T_{sh}=5\text{K}$, $\Delta T_{sc}=5\text{K}$.

Ordering and Dimensions

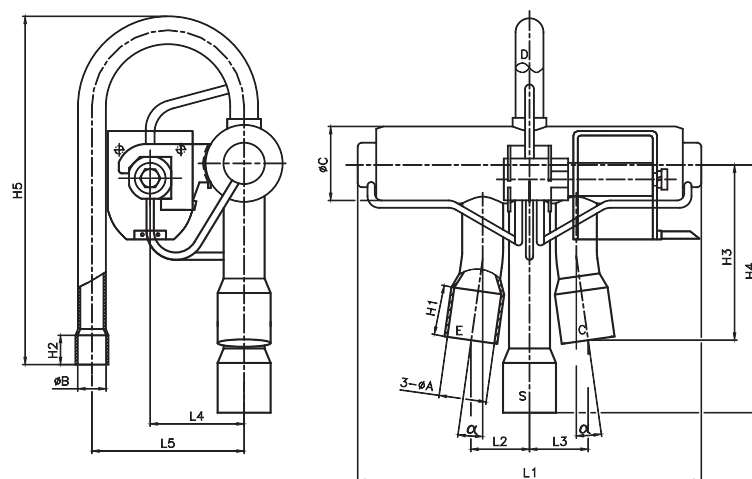
DSF Series



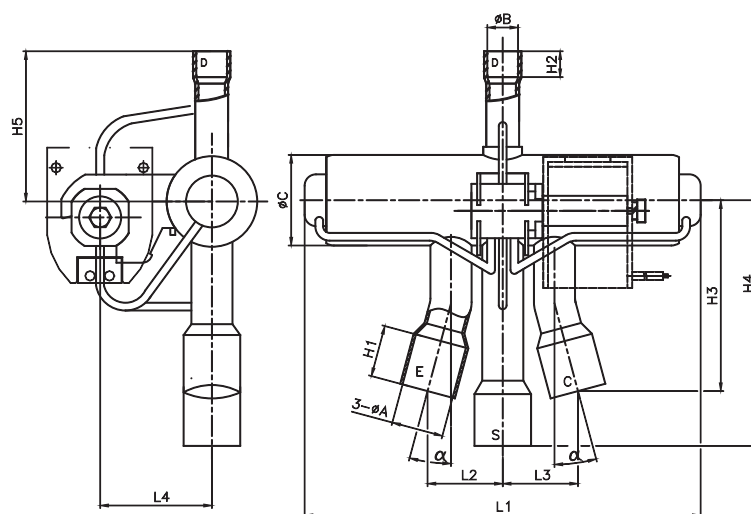
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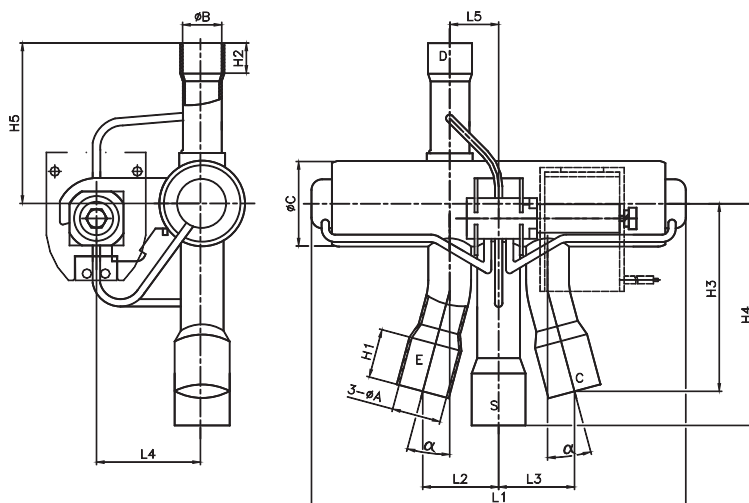
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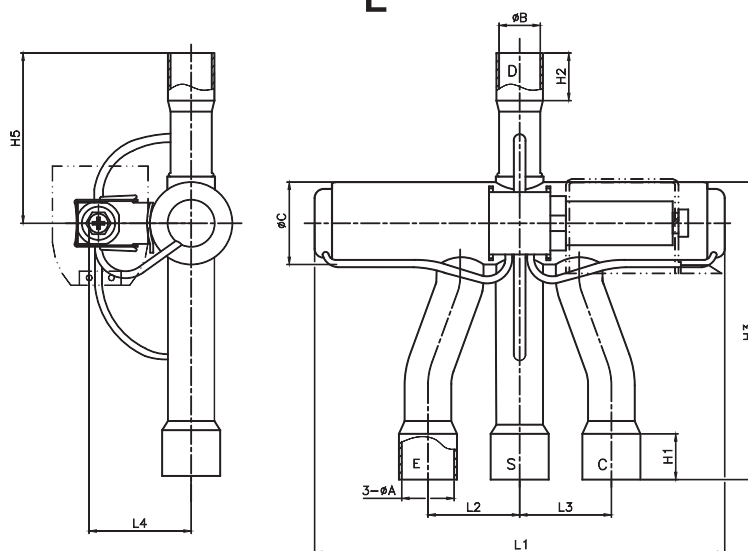
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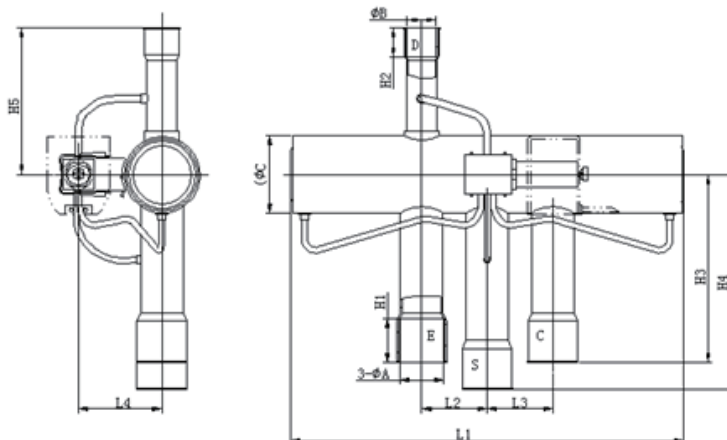
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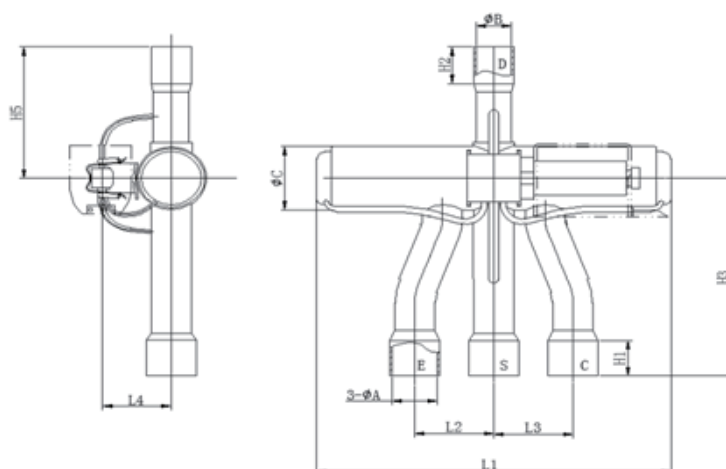
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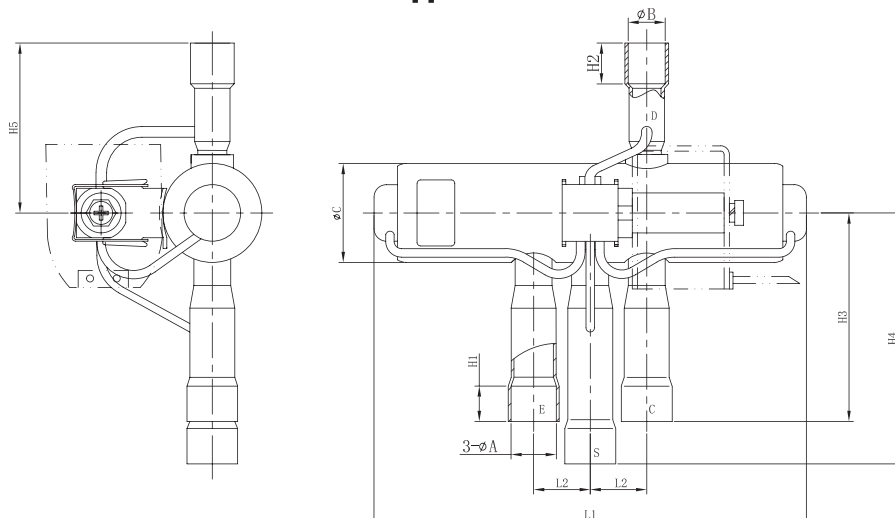
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G



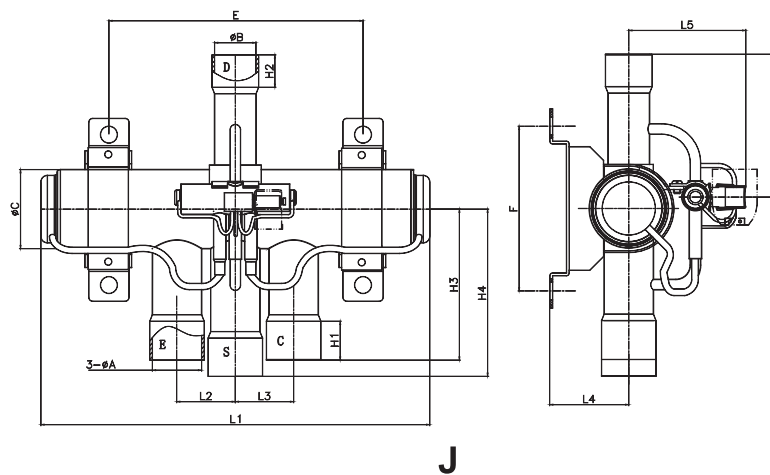
H



I

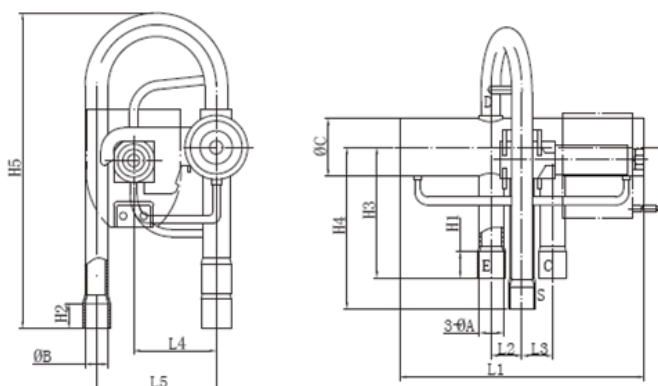
DSF(S) Series

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	A	9.6	8.1	22	96	12	12	29	42	10	8.5	50	62	104	-
DSF-9	A	12.8	9.6	28	120	16	16	32	52	10	10	59	71	119	-
DSF-9B	C	16.1	9.6	28	120	23.5	23.5	32	52	16	10	57	71	119	-
DSF-9E	F	12.8	9.6	28	120	16	16	32	-	10	10	59	71	49	-
DSF-9I	B	12.8	9.6	26.3	117	16	16	32	52	10	10	59	71	110	-
DSF-11	E	16.1	12.8	28	120	25	25	32	-	17	10	62	87	52	15
DSF-11B	E	16.1	12.8	28	120	25	25	32	-	16	10	62	72	52	15
DSF-14	F	22.36	12.83	35.6	187	28.7	28.7	38	-	19.05	12.7	83	95	67	-
DSF-14B	F	19.18	12.83	35.6	187	28.7	28.7	38	-	19.05	12.7	83	95	67	-
DSF-20	F	19.2	12.8	36	193	29	29	36	-	19	13	83	95	67	-
DSF-20-LNX	F	19.18	12.83	35.6	187	28.7	28.7	38	-	19.05	12.7	83	95	67	-
DSF-20K-LNX	F	22.36	12.83	35.6	187	28.7	28.7	38	-	22.35	12.7	83	95	67	-
DSF-20D	F	22.3	16	36	193	29	29	36	-	19	13	83	95	67.1	-
DSF-20F	F	22.33	19.13	36	193	29	29	36	-	19	13	82.4	95	66.9	-
DSF-20N	I	19.18	12.83	35.6	187	28.7	28.7	38	-	19.05	12.7	83	95	67	-
DSF-20-P	F	19.2	12.8	35.6	186	29	29	36	-	19	13	83	95	67	-
DSF-34C	F	22.3	16	45	224	33.5	33.5	41.5	-	22	13	87.6	100	82	-
DSF-34D	F	29.1	22.4	45	224	33.5	33.5	41.5	-	23	22	86	98.6	82	-
DSF-34H	F	22.3	19.2	45	224	33.5	33.5	41.5	-	22	13	86	98.6	82	-
DSF-34S	F	22.4	12.8	45	224	33.5	33.5	41.5	-	23	13.5	86	98.6	82	-
DSF-38	H	28.6	22.5	45	224	50	50	40	-	25	25	140	/	93	17
DSF-50	F	28.6	22.5	45	245	37	37	40	-	30	25	94	107	93	-
DSF-50-KLMT	I	35.13	28.3	45	265	41.4	41.4	40	-	25.4	25	149.9	175.3	96.8	-

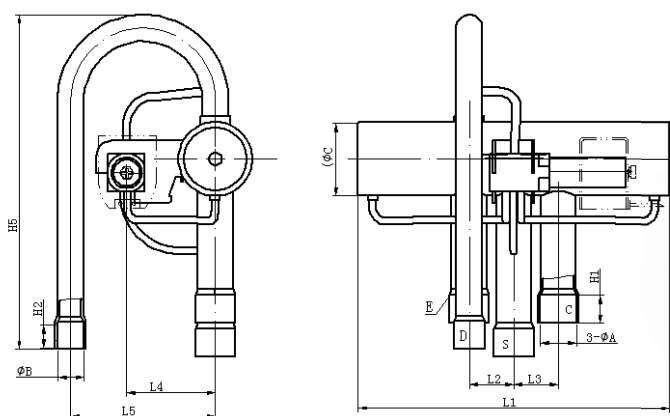
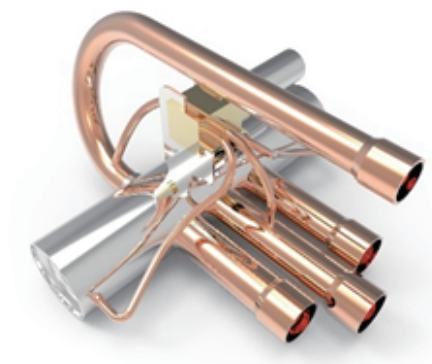


Model	Style	A	B	C	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5	E	F
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF-70	J	32	25.6	61	300	45	45	57	90	30	25	116	129	116.5	196	120
DSF-105	J	38.1	31.8	61	300	45	45	56	90	30	25	117	130	117	196	120
DSF-140	J	45	38.1	83.2	383	58	58	65	90.3	40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

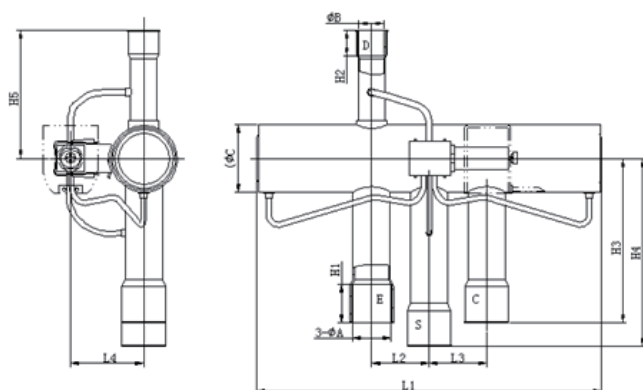
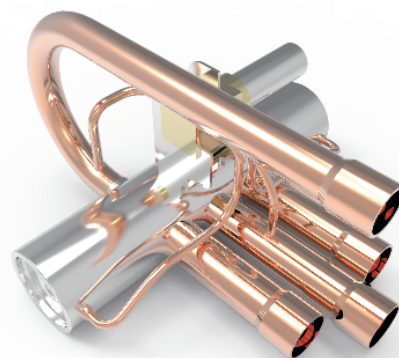
DSF(S) Series



A

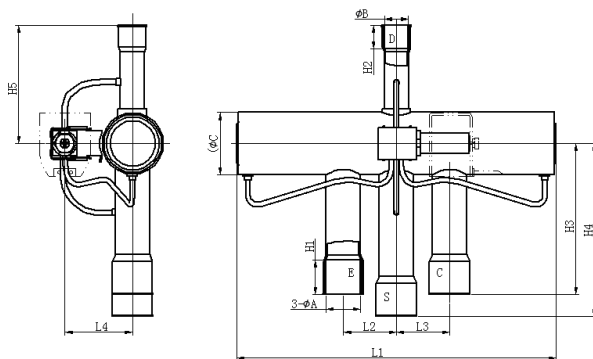


B

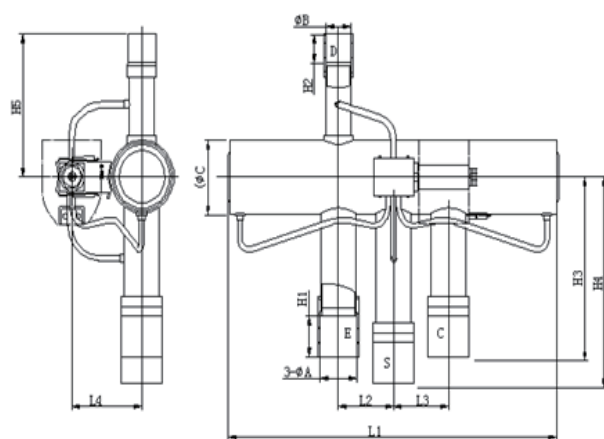
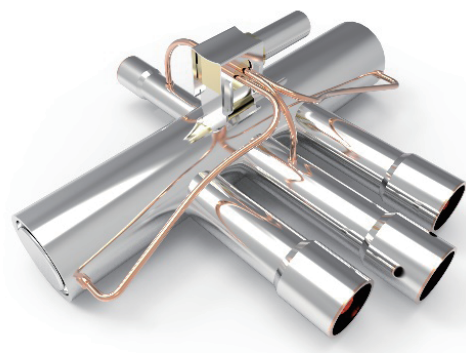


C

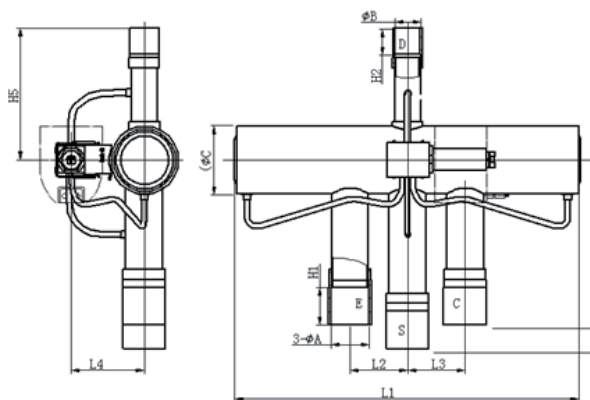
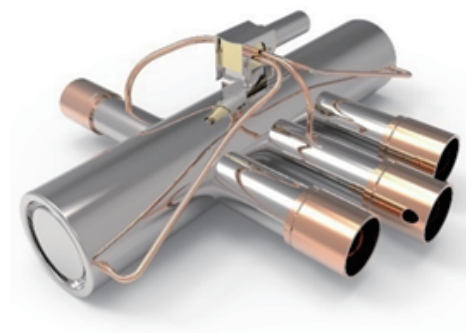




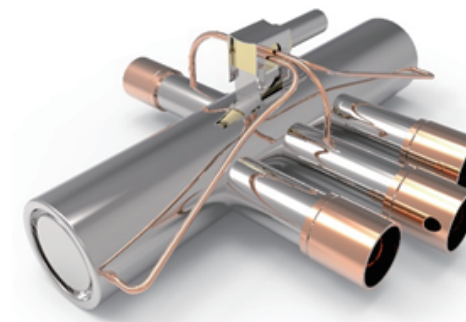
D



E

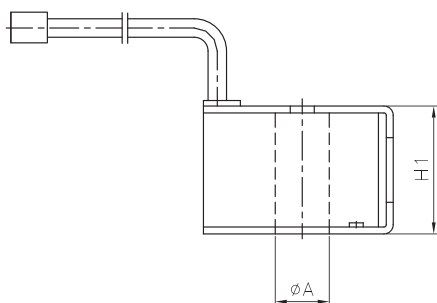


F

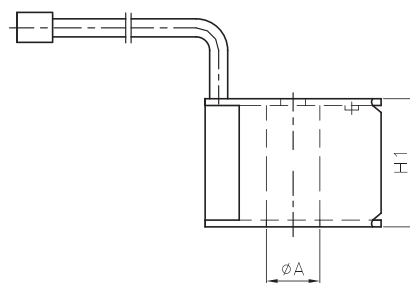


Model	style	A	B	C	L1	L2	L3	L4	L5	H1	H2	H3	H4	H5
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
DSF(S)-4	A	9.6	8.1	22	96	12	12	29	42	10	8.5	50	62	102
DSF(S)-9	A	12.8	9.6	28	120	16	16	32.5	52	10	10	59	71	119
DSF(S)-9E-D	B	12.8	9.6	28	120	16	16	32.5	52	10	10	59	71	119
DSF(S)-20P-B	C	19.2	12.8	36	193	19	19	36	-	19	13	83	95	67
DSF(S)-20P-C	E	19.2	12.8	36	193	19	19	36	-	19	13	83	95	67
DSF(S)-20-B	D	19.2	12.8	36	193	19	19	36	-	19	13	83	95	67
DSF(S)-20-C	F	19.2	12.8	36	193	19	19	36	-	19	13	83	95	67
DSF(S)-34P-B	D	22.3	19.2	45	224	33.5	33.5	41.5	-	22	13	86	98.6	82
DSF(S)-34P-C	E	22.3	19.2	45	224	33.5	33.5	41.5	-	22	13	86	98.6	82
DSF(S)-34-B	D	22.3	19.2	45	224	33.5	33.5	41.5	-	22	13	86	98.6	82
DSF(S)-34-C	F	22.3	19.2	45	224	33.5	33.5	41.5	-	22	13	86	98.6	82

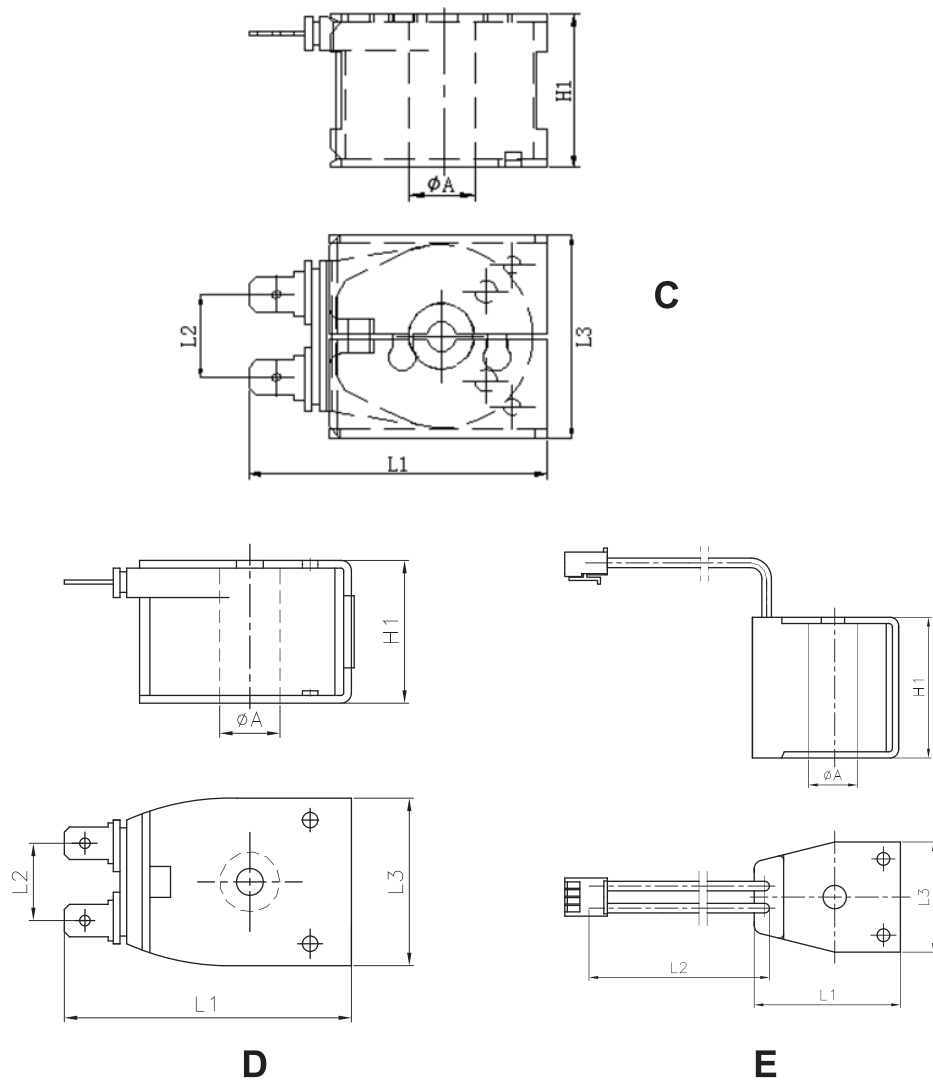
Coil



A



B



Coil

Model	Style	A	L1	L2	L3	H1
		[mm]	[mm]	[mm]	[mm]	[mm]
DXQ-242-ND	D	11.7	53.5	15	33	28.5
DXQ-246	D	11.7	53.5	15	33	28.5
DXQ-1129	C	11.7	53.5	15	36.5	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-670-EUR	B	11.7	33.5	1200	32.5	27.5
DXQ-822	B	11.7	33.5	1000	32.5	27.5
DXQ-648	A	11.7	40.5	1000	33	27.5
DXQ-901	A	11.7	40.5	1500	33	27.5
DXQ-717	E	11.6	34.5	420	26	33
DXQ-417	E	11.6	34.5	400	26	33

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

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 common refrigerants;
- For flange connection, please contact us.

Approvals

UL, Declaration according to PED

Technical Data

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

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 220V

General Performance Data

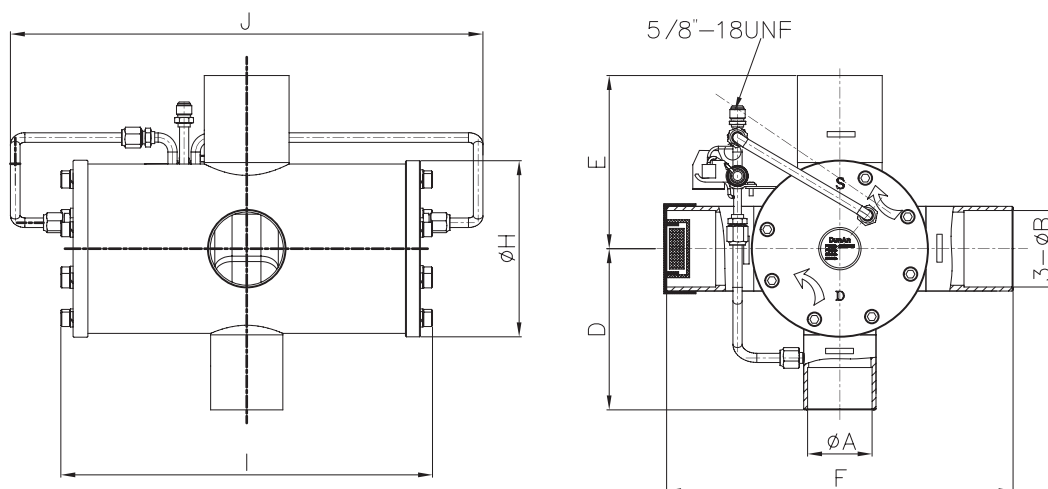
Model	Area of High Pressure Side	Area of Low Pressure Side	Internal Leakage Rate ⁽¹⁾	R22	R134a	R407C	R410A
	[mm ²]	[mm ²]	[≤L/min]	[kW]	[kW]	[kW]	[kW]
DRVB115*	2142	2300	20	196	149	188	225
DRVB118*	2721	2909	30	264	200	253	303
DRVB121*	3608	4264	45	366	278	351	420
DRVB125*	5200	5867	60	476	362	457	547
DRVB126*	5847	7272	67	527	405	513	614
DRVB130*	7410	10200	90	762	580	730	875

The nominal capacity is based on:

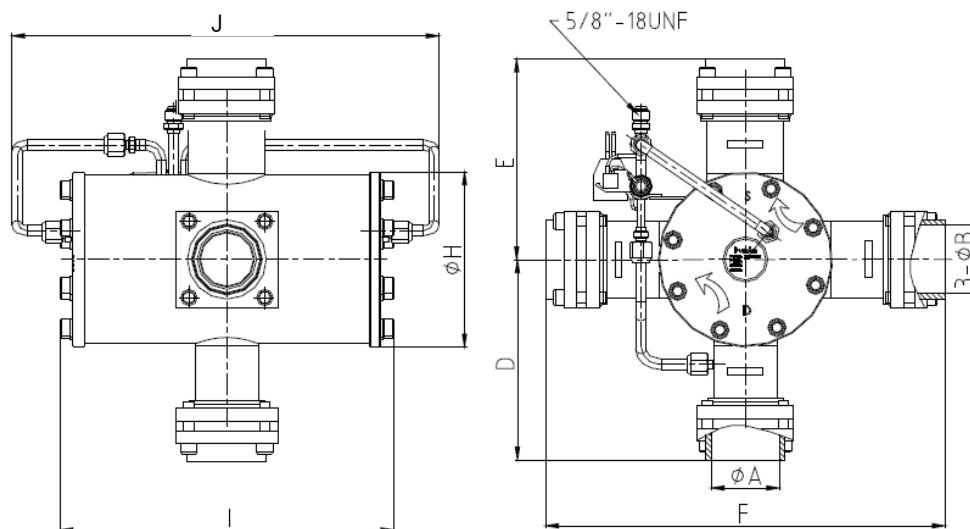
1. Condensing Temperature $T_c=50^{\circ}\text{C}$; 2. Liquid Temperature Before Expansion Valve $T_l=48^{\circ}\text{C}$;
3. Evaporating Temperature $T_e=2^{\circ}\text{C}$; 4. Gas Superheat Degree $\Delta T_{sh}=6\text{K}$; 5. Low Pressure Drop $\Delta p=0.015\text{ MPa}$.

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

Ordering and Dimensions



Model	Code No.	ΦA [mm]	ΦB [mm]	D [mm]	E [mm]	F [mm]	ΦH [mm]	I [mm]	J [mm]	Weight [kg]
DRVB1155	340093000143	54	67	133	138	276	140	302	399	30
DRVB1185	340092000143	54	67	152	152	304	170	325	417	43.5
DRVB1215	340091000143	67	79	168	180	360	184	386	488	59.5
DRVB1255	340090000143	79	92	195	210	420	224	439	540	95.5
DRVB1265	340088002349	92	105	223	223	446	224	473	632	125
DRVB1305	340089000949	106	135	306	306	612	250	546	546	150



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	340093000948	54	67	187	201	402	140	302	399	37.1
DRVB1185-4	340092000948	54	67	195	195	390	170	325	417	50.3
DRVB1215-4	340091000948	67	79	211	228	456	184	386	488	67
DRVB1255-4	340090000148	79	92	243	264	528	224	439	540	106
DRVB1305-4	340089002550	108	133	306	306	612	250	546	646	150

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



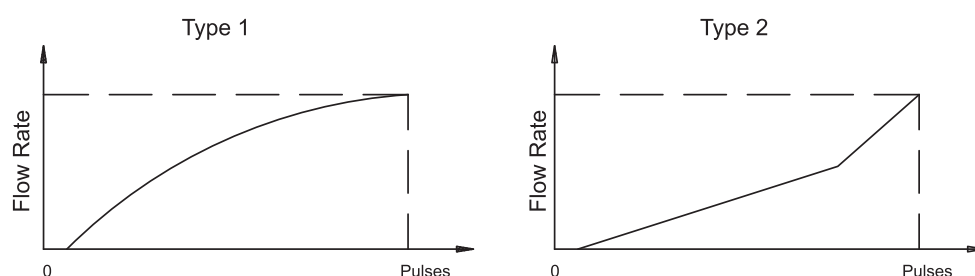
DPF Series Selection Table

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)4.0-101	310017002600	B	4.0	135	≥ 213	1	≤ 1500	≥0.7	3.5	
DPF(B)4.5-101	310018001100	B	4.5	180	≥ 268	1				
DPF(B)5.5-101	310020000900	B	5.5	245	≥ 397	1				
DPF(B)6.4-101	310021000500	B	6.4	260	≥ 483	1				
DPF(M)4.0-D002	310017002000	B	4.0	135	≥ 213	1				
DPF(M)4.5-D002	310018000900	B	4.5	180	≥ 268	1				
DPF(M)5.5-D002	310020000700	B	5.5	245	≥ 397	1				
DPF(M)6.5-D002	310022000700	B	6.5	260	≥ 483	1				

Coil Parameters

Item	Parameter
Full Stroke	500 pulses
Opening Pulse	30±20
Nominal Voltage	DC 12V±10%, rectangular wave
Actuating Mode	4-phase 8-step permanent magnet stepper motor
Excitation Mode	1 ~ 2 phase excitation, monopole actuation
Excitation Rate	30 ~ 90 PPS (Φ 1.0- Φ 2.4), 30 ~ 40 PPS (Φ 2.8- Φ 6.5)
Insulation Class	E
Resistance	46±3.7Ω (DPF(B)1.0-6.4), 32±1.6Ω (DPF(M)4.0-6.5) (20°C)
Current	260mA/Phase (DPF(B)1.0-6.4), 375mA/Phase (DPF(M)4.0-6.5) (20°C)
Protection Class	IP65(DPF(B)1.0-6.4), IP67(DPF(M)4.0-6.5)

Flow Characteristics



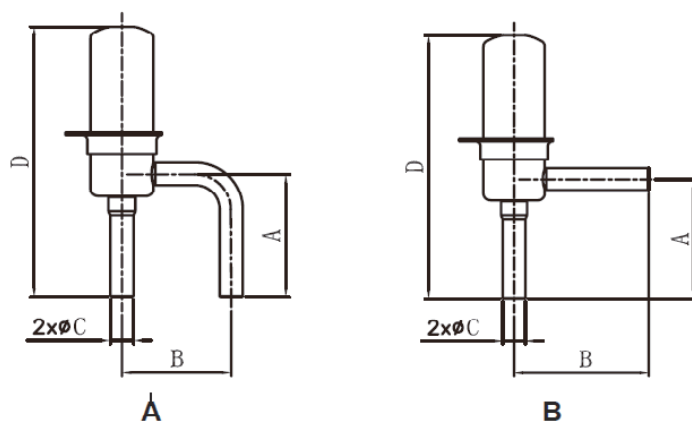
Nominal Capacity

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	7.1	2.7	1.8	4.65
DPF(B)1.3	1.3	6.2	4.1	14.5	5.4	3.7	9.3
DPF(B)1.65	1.65	10	6.7	23.3	8.8	6.0	15.0
DPF(B)1.8	1.8	12.1	8.1	28.7	10.6	7.3	18.2
DPF(B)2.0	2.0	14.8	9.8	34.6	12.9	8.9	22.2
DPF(B)2.2	2.2	17.8	11.8	41.7	15.6	10.7	26.7
DPF(B)2.4	2.4	21.2	14.1	49.4	18.5	12.7	31.8
DPF(B)2.8	2.8	28.9	19.2	67.5	25.2	17.3	43.4
DPF(B)3.0	3.0	31.5	21.0	73.5	27.5	18.9	47.3
DPF(B)3.2	3.2	33.9	22.6	79.3	29.6	20.3	50.9
DPF(B)4.0	4.0	50.4	32.3	115.0	42.0	29.4	82.0
DPF(B)4.5	4.5	63.0	40.4	145.0	52.5	36.8	102.6
DPF(B)5.5	5.5	84.0	53.9	192.0	70.0	49.0	136.8
DPF(B)6.4	6.4	126.0	80.9	288.0	105.0	73.5	205.2
DPF(M)4.0	4.0	50.4	32.3	115.0	42.0	29.4	82.0
DPF(M)4.5	4.5	63.0	40.4	145.0	52.5	36.8	102.6
DPF(M)5.5	5.5	84.0	53.9	192.0	70.0	49.0	136.8
DPF(M)6.5	6.5	126.0	80.9	288.0	105.0	73.5	205.2

The nominal capacity is based on:

1. Valve fully open;
2. Condensing Temperature $T_c=38^{\circ}\text{C}$;
3. Evaporating Temperature $T_e=5^{\circ}\text{C}$;
4. Superheat Degree $\Delta T_{sh}=0\text{K}$;
5. Subcooling Degree $\Delta T_{sc}=0\text{K}$

Style

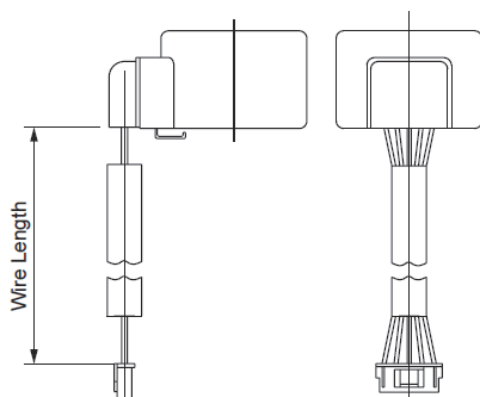


Dimensions

Model	Style	A	B	C	D
		[mm]	[mm]	[in.]	[mm]
DPF(B) 1.0~2.4	A	35	30	1/4	77
	B	38	38		80
DPF(B) 2.8~3.2	A	35	36	5/16	77
	B	47	50		89
DPF(B) 4.0~6.4	B	45	45	1/2	91
DPF(M) 4.0~6.5	B	67	62.5	5/8	140

Coils

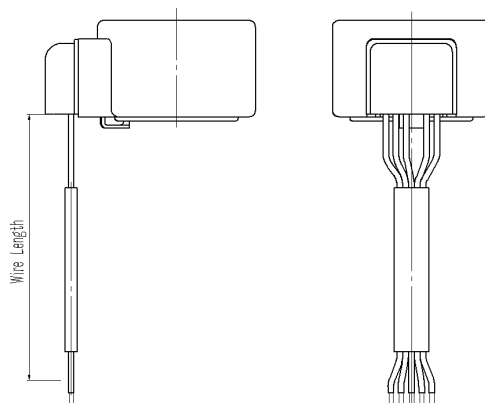
For application in systems with conventional refrigerants (e.g. R410A, R134a, R407C, R404A etc.)



Coil Model	Code NO	Valve Model	Wire Length	Wire Number
DPFX07-037	310701138900	DPF(B)1.0-6.4	2000	5
DPFX07-118	310701133500	DPF(B)1.0-6.4	2000	6
DPFX10-004	310740000600	DPF(M)4.0-6.5	4000	5
DPFX10-008	310722000100	DPF(M)4.0-6.5	4000	6

Note: connector and cable length can be customized

For application in systems with flammable refrigerants (e.g. R290, R600, R600a, R1270 etc.)



Coil Model	Code NO	Valve Model	Wire Length	Wire Number
DPFX07-189	310701151300	DPF(B)1.0-6.4	2000	5
DPFX07-190	310701151400	DPF(B)1.0-6.4	2000	6
DPFX10-009	310722000200	DPF(M)4.0-6.5	4000	5
DPFX10-010	310722000300	DPF(M)4.0-6.5	4000	6

Note: connector and cable length can be customized

Thermostatic Expansion Valve

TA Series

Application

TA/TAE series are used to regulate liquid refrigerant flow into evaporators with smaller capacities in refrigeration, heat pump, and air conditioning systems by sensing the refrigerant temperature at the evaporator outlet, where the bulb must be placed.

Features

- Fixed and adjustable superheat, angleway and straightway types 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, and R407C

Max. Bulb Temperature: 120°C

Max. Valve Housing Temperature: 150°C

Max. Operating Pressure: 3.4 Mpa

Max. Test Pressure: 3.75 Mpa

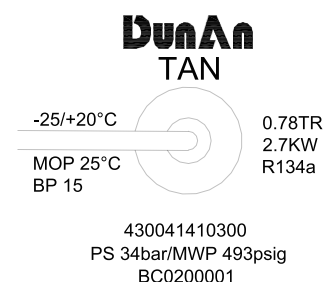
Equalization Connections: 6mm (1/4 in.) (solder ODF)

Capillary Tube Length: 750mm (30 in.)

Bleed: 15% / 30%



Identification



Refrigerant

X: R22
Z: R407C
N: R134a
S: R404A/R507
P: R290

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°C = Evaporating Temperature Range
MOP 25°C = Max. Evaporating Pressure
BP15 = Bleed 15%
430041410300 = Code Number
PS 34bar/MWP 493psig = Max. Working Pressure
BC0200001 = Date Marking

Nominal Capacity

Model	R22		R134a		R407C		R404A/R507C		R290	
	TR	kW	TR	kW	TR	kW	TR	kW	TR	kW
TA/TAE 0	0.15	0.5	0.11	0.4	0.16	0.5	0.11	0.38	0.17	0.6
TA/TAE 1	0.3	1.0	0.25	0.9	0.3	1.1	0.21	0.7	0.32	1.2
TA/TAE 2	0.7	2.5	0.5	1.8	0.8	2.7	0.45	1.6	0.74	2.6
TA/TAE 3	1.0	3.5	0.78	2.7	1.1	3.8	0.6	2.1	1.1	3.9
TA/TAE 4	1.5	5.2	1.3	4.6	1.6	5.6	1.2	4.2	1.6	5.6
TA/TAE 5	2.3	8.0	1.9	6.7	2.5	8.6	1.7	6.0	2.4	8.4
TA/TAE 6	3.0	10.5	2.5	8.6	3.2	11.3	2.2	7.7	3.2	11.2
TA/TAE 7	4.5	15.5	3.0	10.5	4.9	16.7	2.6	9.1	4.7	16.5

The Nominal capacity is based on:

1. Evaporating Temperature $T_e=5^\circ\text{C}$; 2. Condensing Temperature $T_c=32^\circ\text{C}$; 3. Liquid Temperature $T_l=28^\circ\text{C}$;
2. Static Superheat $SS=4\text{K}$; 5. Opening Superheat $OS=4\text{K}$.

MOP Options

Refrigerant	Range N -40 ~ +10°C	Range HP -25 ~ +20°C MOP +25°C
R134a	Without MOP	6.7 bar
R404A	Without MOP	12.6 bar
R290	Without MOP	9.5 bar
R407C	Without MOP	11.9 bar

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

Ordering

R134a

Model	Connection Solder	Code No.			Code No.		
		Range N = -40 ~ +10°C			Range HP = -25~+20°C		
	ODFXODF	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization
TAN/TAEN 0	1/4x3/8	430011100000	430011110000	430011120000	430041100000	430041110000	430041120000
TAN/TAEN 1	1/4x3/8	430011100100	430011110100	430011120100	430041100100	430041110100	430041120100
TAN/TAEN 2	1/4x3/8	430011100200	430011110200	430011120200	430041100200	430041110200	430041120200
TAN/TAEN 3	1/4x3/8	430011100300	430011110300	430011120300	430041100300	430041110300	430041120300
TAN/TAEN 3	1/4x1/2	430011200300	430011210300	430011220300	430041200300	430041210300	430041220300
TAN/TAEN 3	3/8x1/2	430011400300	430011410300	430011420300	430041400300	430041410300	430041420300
TAN/TAEN 4	1/4x3/8	430011100400	430011110400	430011120400	430041100400	430041110400	430041120400
TAN/TAEN 4	1/4x1/2	430011200400	430011210400	430011220400	430041200400	430041210400	430041220400
TAN/TAEN 4	3/8x1/2	430011400400	430011410400	430011420400	430041400400	430041410400	430041420400
TAN/TAEN 5	1/4x3/8	430011100500	430011110500	430011120500	430041100500	430041110500	430041120500
TAN/TAEN 5	1/4x1/2	430011200500	430011210500	430011220500	430041200500	430041210500	430041220500
TAN/TAEN 5	3/8x1/2	430011400500	430011410500	430011420500	430041400500	430041410500	430041420500
TAN/TAEN 6	1/4x3/8	430011100600	430011110600	430011120600	430041100600	430041110600	430041120600
TAN/TAEN 6	1/4x1/2	430011200600	430011210600	430011220600	430041200600	430041210600	430041220600
TAN/TAEN 6	3/8x1/2	430011400600	430011410600	430011420600	430041400600	430041410600	430041420600
TAN/TAEN 7	1/4x3/8	430011100700	430011110700	430011120700	430041100700	430041110700	430041120700
TAN/TAEN 7	1/4x1/2	430011200700	430011210700	430011220700	430041200700	430041210700	430041220700
TAN/TAEN 7	3/8x1/2	430011400700	430011410700	430011420700	430041400700	430041410700	430041420700

Code numbers listed above refer to standard series, if BP function is need, please contact u

R407C

Model	Connection Solder	Code No.			Code No.		
		Range N = -40 ~ +10°C			Range HP = -25 ~ +20°C		
	ODFXODF	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization
TAZ/TAEZ 0	1/4x3/8	430011101000	430011111000	430011121000	430041101000	430041111000	430041121000
TAZ/TAEZ 1	1/4x3/8	430011101100	430011111100	430011121100	430041101100	430041111100	430041121100
TAZ/TAEZ 2	1/4x3/8	430011101200	430011111200	430011121200	430041101200	430041111200	430041121200
TAZ/TAEZ 3	1/4x3/8	430011101300	430011111300	430011121300	430041101300	430041111300	430041121300
TAZ/TAEZ 3	1/4x1/2	430011201300	430011211300	430011221300	430041201300	430041211300	430041221300
TAZ/TAEZ 3	3/8x1/2	430011401300	430011411300	430011421300	430041401300	430041411300	430041421300
TAZ/TAEZ 4	1/4x3/8	430011101400	430011111400	430011121400	430041101400	430041111400	430041121400
TAZ/TAEZ 4	1/4x1/2	430011201400	430011211400	430011221400	430041201400	430041211400	430041221400
TAZ/TAEZ 4	3/8x1/2	430011401400	430011411400	430011421400	430041401400	430041411400	430041421400
TAZ/TAEZ 5	1/4x3/8	430011101500	430011111500	430011121500	430041101500	430041111500	430041121500
TAZ/TAEZ 5	1/4x1/2	430011201500	430011211500	430011221500	430041201500	430041211500	430041221500
TAZ/TAEZ5	3/8x1/2	430011401500	430011411500	430011421500	430041401500	430041411500	430041421500
TAZ/TAEZ 6	1/4x3/8	430011101600	430011111600	430011121600	430041101600	430041111600	430041121600
TAZ/TAEZ 6	1/4x1/2	430011201600	430011211600	430011221600	430041201600	430041211600	430041221600
TAZ/TAEZ 6	3/8x1/2	430011401600	430011411600	430011421600	430041401600	430041411600	430041421600
TAZ/TAEZ 7	1/4x3/8	430011101700	430011111700	430011121700	430041101700	430041111700	430041121700
TAZ/TAEZ 7	1/4x1/2	430011201700	430011211700	430011221700	430041201700	430041211700	430041221700
TAZ/TAEZ 7	3/8x1/2	430011401700	430011411700	430011421700	430041401700	430041411700	430041421700

Code numbers listed above refer to standard series, if BP function is need, please contact us

R404A/R507C

Model	Connection Solder	Code No.			Code No.		
		Range N = -40 ~ +10°C			Range HP = -25 ~ +20°C		
	ODFXODF	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization
TAS/TAES 0	1/4x3/8	430011103000	430011113000	430011123000	430041103000	430041113000	430041123000
TAS/TAES 1	1/4x3/8	430011103100	430011113100	430011123100	430041103100	430041113100	430041123100
TAS/TAES 2	1/4x3/8	430011103200	430011113200	430011123200	430041103200	430041113200	430041123200
TAS/TAES 3	1/4x3/8	430011103300	430011113300	430011123300	430041103300	430041113300	430041123300
TAS/TAES 3	1/4x1/2	430011203300	430011213300	430011223300	430041203300	430041213300	430041223300
TAS/TAES 3	3/8x1/2	430011403300	430011413300	430011423300	430041403300	430041413300	430041423300
TAS/TAES 4	1/4x3/8	430011103400	430011113400	430011123400	430041103400	430041113400	430041123400
TAS/TAES 4	1/4x1/2	430011203400	430011213400	430011223400	430041203400	430041213400	430041223400
TAS/TAES 4	3/8x1/2	430011403400	430011413400	430011423400	430041403400	430041413400	430041423400
TAS/TAES 5	1/4x3/8	430011103500	430011113500	430011123500	430041103500	430041113500	430041123500
TAS/TAES 5	1/4x1/2	430011203500	430011213500	430011223500	430041203500	430041213500	430041223500
TAS/TAES 5	3/8x1/2	430011403500	430011413500	430011423500	430041403500	430041413500	430041423500
TAS/TAES 6	1/4x3/8	430011103600	430011113600	430011123600	430041103600	430041113600	430041123600
TAS/TAES 6	1/4x1/2	430011203600	430011213600	430011223600	430041203600	430041213600	430041223600
TAS/TAES 6	3/8x1/2	430011403600	430011413600	430011423600	430041403600	430041413600	430041423600
TAS/TAES 7	1/4x3/8	430011103700	430011113700	430011123700	430041103700	430041113700	430041123700
TAS/TAES 7	1/4x1/2	430011203700	430011213700	430011223700	430041203700	430041213700	430041223700
TAS/TAES 7	3/8x1/2	430011403700	430011413700	430011423700	430041403700	430041413700	430041423700

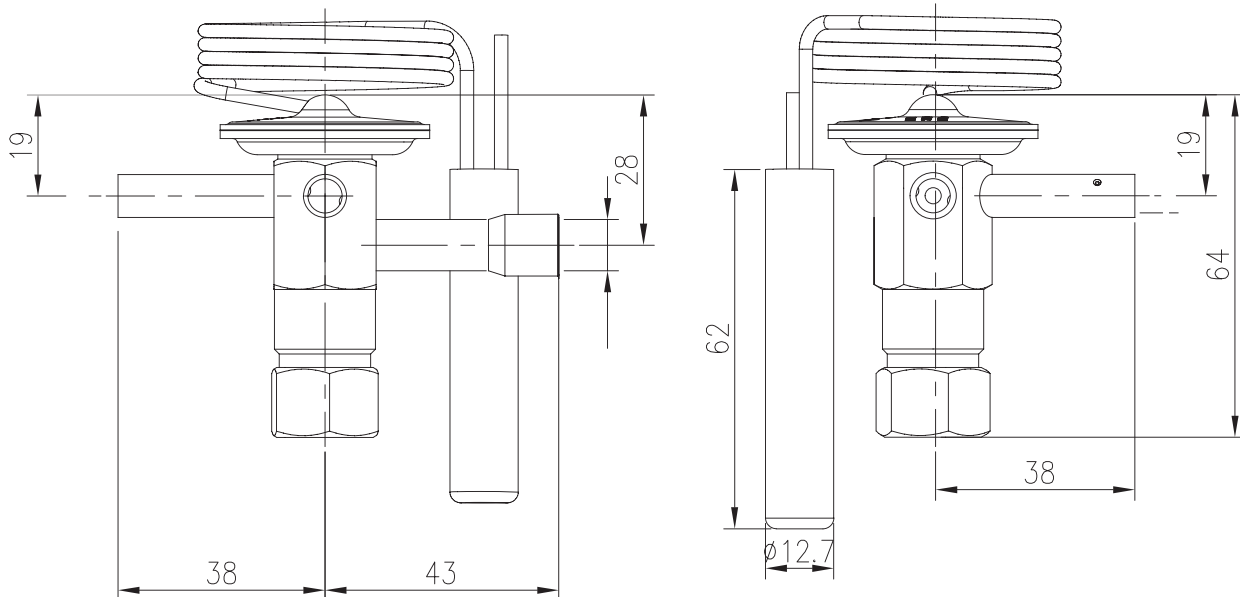
Code numbers listed above refer to standard series, if BP function is need, please contact us.

R290

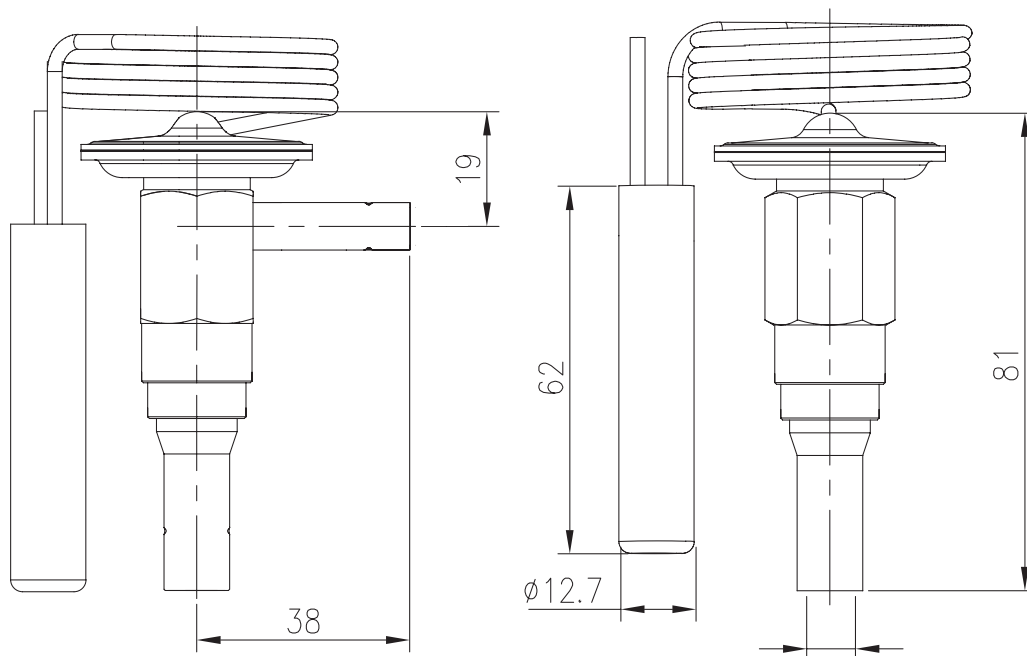
Model	Connection Solder	Code No.			Code No.		
		Range N = -40 ~ +10°C			Range HP = -25 ~ +20°C		
	ODFXODF	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization	Angleway Internal Equalization	Straightway Internal Equalization	Angleway External Equalization
TAP/TAEP 0	1/4x3/8	430011104000	430011114000	430011124000	430041104000	430041114000	430041124000
TAP/TAEP 1	1/4x3/8	430011104100	430011114100	430011124100	430041104100	430041114100	430041124100
TAP/TAEP 2	1/4x3/8	430011104200	430011114200	430011124200	430041104200	430041114200	430041124200
TAP/TAEP 3	1/4x3/8	430011104300	430011114300	430011124300	430041104300	430041114300	430041124300
TAP/TAEP 3	1/4x1/2	430011204300	430011214300	430011224300	430041204300	430041214300	430041224300
TAP/TAEP 3	3/8x1/2	430011404300	430011414300	430011424300	430041404300	430041414300	430041424300
TAP/TAEP 4	1/4x3/8	430011104400	430011114400	430011124400	430041104400	430041114400	430041124400
TAP/TAEP 4	1/4x1/2	430011204400	430011214400	430011224400	430041204400	430041214400	430041224400
TAP/TAEP 4	3/8x1/2	430011404400	430011414400	430011424400	430041404400	430041414400	430041424400
TAP/TAEP 5	1/4x3/8	430011104500	430011114500	430011124500	430041104500	430041114500	430041124500
TAP/TAEP 5	1/4x1/2	430011204500	430011214500	430011224500	430041204500	430041214500	430041224500
TAP/TAEP 5	3/8x1/2	430011404500	430011414500	430011424500	430041404500	430041414500	430041424500
TAP/TAEP 6	1/4x3/8	430011104600	430011114600	430011124600	430041104600	430041114600	430041124600
TAP/TAEP 6	1/4x1/2	430011204600	430011214600	430011224600	430041204600	430041214600	430041224600
TAP/TAEP 6	3/8x1/2	430011404600	430011414600	430011424600	430041404600	430041414600	430041424600
TAP/TAEP 7	1/4x3/8	430011104700	430011114700	430011124700	430041104700	430041114700	430041124700
TAP/TAEP 7	1/4x1/2	430011204700	430011214700	430011224700	430041204700	430041214700	430041224700
TAP/TAEP 7	3/8x1/2	430011404700	430011414700	430011424700	430041404700	430041414700	430041424700

Code numbers listed above refer to standard series, if BP function is need, please contact us

Dimensions and Weight



Straightway Adjustable Size
Weight Approx.: 0.22kg



Angleway Non-Adjustable Size
Weight Approx.: 0.19 kg

Thermostatic Expansion Valves

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;
- 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

Bulb. Element not mounted: 60°C

Valve body temperature: 110°C

Max. Working Pressure: 4.6MPa

Max. Test Pressure: 5.1MPa

Pressure Equalization: 6mm (1/4") (Solder ODF)

Capillary Tube Length: 1500mm

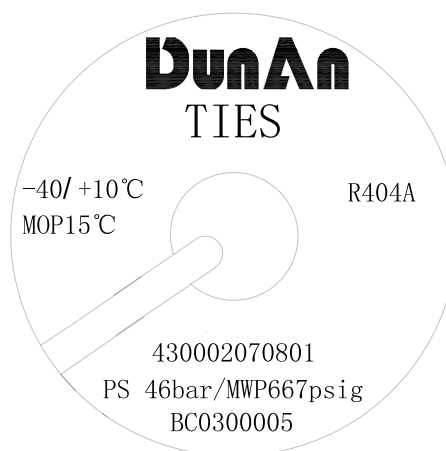
Identification

Example

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

Refrigerant

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



MOP Options

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

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

Nominal Capacity

Orifice No.	R22		R407C		R134a		R404A/R507		R410A	
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]
0X	0.9	0.25	0.96	0.27	0.68	0.19	0.65	0.18	1.05	0.29
00	1.78	0.51	1.87	0.53	1.2	0.34	1.3	0.37	2.08	0.60
01	3.48	0.99	3.67	1.04	2.08	0.59	2.64	0.75	4.07	1.16
02	4.72	1.34	4.96	1.41	2.55	0.73	3.7	1.05	5.52	1.57
03	8.01	2.27	8.45	2.4	4.3	1.22	6.29	1.79	9.37	2.66
04	12.2	3.45	12.9	3.67	6.4	1.82	9.97	2.83	14.27	4.04
05	16.8	4.76	17.1	4.86	8.43	2.4	13.1	3.71	19.66	5.57
06	19.7	5.6	20.5	5.82	10.1	2.87	15.6	4.42	23.05	6.55

The nominal capacity is based on:

1. Evaporating Temperature $T_e=4.4^\circ\text{C}$;
2. Condensing Temperature $T_c=38^\circ\text{C}$;
3. Refrigerant Temperature $T_r=37^\circ\text{C}$.

Ordering

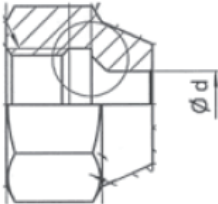
Flare × Flare

Refrigerant	Model	Pressure Equalization	Connection		Code No.		
			Inlet × Outlet		-40°C~+10°C		-60~-25°C
			[in. x in.]	[mm x mm]	Without MOP	With MOP	Without MOP
R22	TIX	Internal	3/8×1/2	10×12	430000070300	430000070301	430000070306
	TIEX	External			430000070400	430000070401	430000070406
R407C	TIZ	Internal			430005070500	430005070501	/
	TIEZ	External			430005070600	430005070601	/
R134a	TIN	Internal			430001070300	430001070101	/
	TIEN	External			430001070400	430001070201	/
R404A/ R507	TIS	Internal			430002070300	430002070701	430002070706
	TIES	External			430002070400	430002070801	430002070806
R410A	TIL	Internal			430003070100	430003070101	/
	TIEL	External			430003070200	430003070201	/

Flare × Solder

Refrigerant	Model	Pressure Equalization	Connection		Code No.		
			Inlet × Outlet		-40~+10°C		-60~-25°C
					Without MOP	With MOP	Without MOP
R22	TIX	Internal	3/8	1/2	430000070300	430000070301	430000080306
			10	12	430000070400	430000070401	430000080316
	TIEX	External	3/8	1/2	430005070500	430005070501	430000080406
			10	12	430005070600	430005070601	430000080416
R407C	TIZ	Internal	3/8	1/2	430001070300	430001070101	/
			10	12	430001070400	430001070201	/
	TIEZ	External	3/8	1/2	430002070300	430002070701	/
			10	12	430002070400	430002070801	/
R134a	TIN	Internal	3/8	1/2	430003070100	430003070101	/
			10	12	430003070200	430003070201	/
	TIEN	External	3/8	1/2	430001080200	430001080201	/
			10	12	430001080210	430001080211	/
R404A/ R507	TIS	Internal	3/8	1/2	430002080700	430002080701	430002080706
			10	12	430002080710	430002080711	430002080716
	TIES	External	3/8	1/2	430002080800	430002080801	430002080806
			10	12	430002080810	430002080811	430002080816
R410A	TIL	Internal	3/8	1/2	430003080100	430003080101	/
			10	12	430003080110	430003080111	/
	TIEL	External	3/8	1/2	430003080200	430003080201	/
			10	12	430003080210	430003080211	/

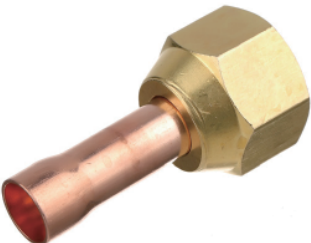
Flare connections

	Connection for copper tubing with outside diameter		Code No.
	in.	mm	
	1/4	6	432500070204
	3/8	10	432500070208
	1/2	12	432500070210

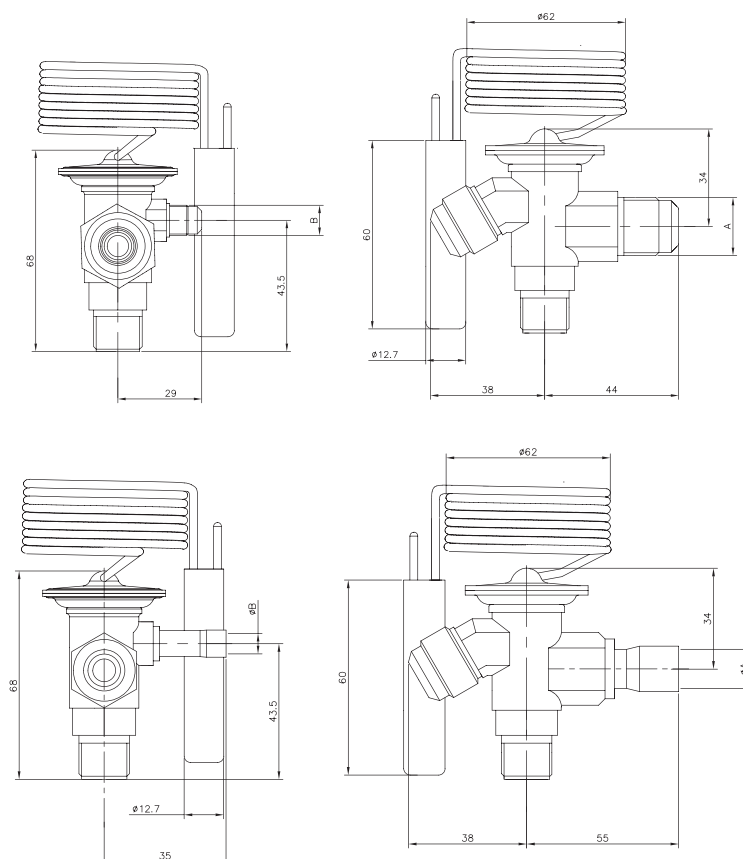
Orifice assembly with filter

	Orifice No.	Code No.
	0x	4339000000001
	00	4339000000002
	01	4339000000003
	02	4339000000004
	03	4339000000005
	04	4339000000006
	05	4339000000007
	06	4339000000008

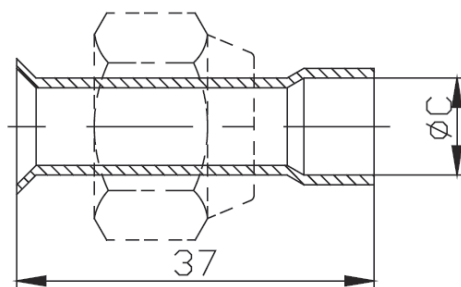
Solder adaptor

	Connection ODF solder	Code NO.
	3/8 in.	434900080001
	10 mm	434900080001

Dimensions



Connection	Outlet ΦA		Equalization ΦB	
Flare	1/2" (thread 3/4-16UNF)		1/4" (thread 7/16-20UNF)	
Solder	1/2"	12mm	1/4"	6mm



Solder ODF	
in.	mm
3/8	10

Thermostatic Expansion Valves

TCE/TCBE Series

Application

TCE/TCBE thermostatic expansion valves are used to adjust the supply of refrigerant in evaporator by controlling the superheat. The sensor 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;
- Available with MOP(MOP15°C);
- Available with various connections: Solder, Flare, MIO and ORFS.



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. / 6 mm

Capillary Lengths: 1500 mm

Bleed: 15%

Nominal Capacity

Model	Orifice No.	R134a		R404A/R507		R407C		R410A	
		kW	TR	kW	TR	kW	TR	kW	TR
TCE	3.5	6	1.5	7	2	9	2.5	12	3.5
	4.5	8	2.5	9	2.5	13	3.5	16	4.5
	6.5	12	3.5	14	4	19	5	24	6.5
	9	17	4.5	18	5	25	7	32	9
	13	24	7	26	7.5	36	10	45	13
TCBE	15	29	8	31	9	42	12	54	15
	19	37	10	39	11	53	15	68	19
	23	44	12	45	13	62	18	79	23

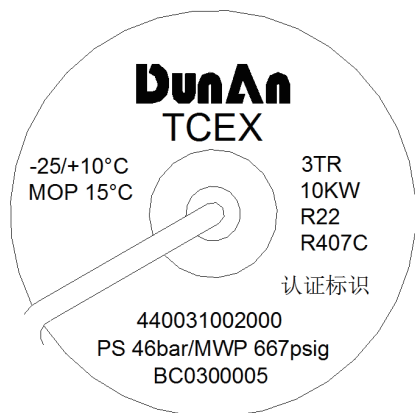
The Nominal capacity is based on:

1. Evaporating Temperature $T_e=4^{\circ}\text{C}$; 2. Liquid Temperature Before Valve $T_l=37^{\circ}\text{C}$;
3. Condensing Temperature $T_c=38^{\circ}\text{C}$; 4. Static Superheat $SS=4\text{K}$; 5. Opening Superheat $OS=4\text{K}$.

MOP Options

Refrigerants	N Series -40°C~+10°C	K Series -25°C~+10°C MOP 15°C
R134a	Without MOP	5 bar
R404A/R507	Without MOP	9.4 bar
R407C	Without MOP	7.5 bar
R410A	Without MOP	12.5 bar

Identification



Refrigerant Code

X: R22

Z: R407C

N: R134a

S: R404A/R507

Example

TCEX

3 TR

10 kW

R22/R407C

-25/+10°C

MOP 15°C

BP15

440031002000

PS 46bar/MWP 667psig

EF2300001

= Type (X=R22)

= Nominal Capacity in Tons

= Nominal Capacity in kW

= Refrigerant

= Evaporating Temperature Range

= Max. Evaporating Pressure

= Bleed 15%

= Code Number

= Max. Working Pressure

= Date Marking

Ordering

R134a, Opening Superheat OS=4K, N Series

Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [in.]
TCEN	3.5	6	440011000000	3/8×5/8	440011050000	10×16
			440011010000	1/2×5/8	440011060000	12×16
	4.5	8	440011020100	1/2×7/8	440011070100	12×22
	6.5	12	440011010200	1/2×5/8	440011060200	12×16
			440011020200	1/2×7/8	440011070200	12×22
			440011030200	5/8×7/8	440011080200	16×22
	9	17	440011030300	5/8×7/8	440011080300	16×22
	13	24	440011030400	5/8×7/8	440011080400	16×22
			440011040400	5/8×1-1/8	440011090400	16×28
TCBEN	15	29	440011030500	5/8×7/8	440011080500	16×22
			440011040500	5/8×1-1/8	440011090500	16×28
	19	37	440011040600	5/8×1-1/8	440011090600	16×28
			440011100600	7/8×1-1/8	440011130600	22×28
	23	44	440011100700	7/8×1-1/8	440011130700	22×28
			440011110700	7/8×1-3/8	440011120700	22×35

Pressure Equalization=1/4 in.(6mm) ODF

R134a: Opening Superheat = 4K, N series

Model	Orifice No.	Capacity [kW]	Connection Flare	
			Code No.	Inlet x Outlet x Eq. [in.]
TCEN	3.5	6	440011140000	1/2×5/8×1/4MIO
	4.5	8	440011150100	1/2×5/8×1/4F
			440011140100	1/2×5/8×1/4MIO
			440011160100	3/8×1/2MIO×1/4F
			440011170100	3/8×1/2×1/4F
	6.5	12	440011150200	1/2×5/8×1/4F
			440011160200	3/8×1/2MIO×1/4F
			440011170200	3/8×1/2×1/4F
	9	17	440011140300	1/2×5/8×1/4MIO
			440011150300	1/2×5/8×1/4F
			440011160300	3/8×1/2MIO×1/4F
			440011180300	5/8×3/4×1/4MIO
	13	24	440011150400	1/2×5/8×1/4F
			440011180400	5/8×3/4×1/4MIO
TCBEN	15	29	440011180500	5/8×3/4×1/4MIO
	19	37	440011190600	5/8×3/4×1/4F
			440011180600	5/8×3/4×1/4MIO
	23	44	440011180700	5/8×3/4×1/4MIO

F: Flare; MIO: O-ring; ORFS: Ending Seals

R134a: Opening Superheat = 4K, K Series

Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [mm]
TCEN	3.5	6	440031000000	3/8×5/8	440031050000	10×16
			440031010000	1/2×5/8	440031060000	12×16
	4.5	8	440031020100	1/2×7/8	440031070100	12×22
	6.5	12	440031010200	1/2×5/8	440031060200	12×16
			440031020200	1/2×7/8	440031070200	12×22
			440031030200	5/8×7/8	440031080200	16×22
	9	17	440031030300	5/8×7/8	440031080300	16×22
	13	24	440031030400	5/8×7/8	440031080400	16×22
			440031040400	5/8×1-1/8	440031090400	16×28
TCBEN	15	29	440031030500	5/8×7/8	440031080500	16×22
			440031040500	5/8×1-1/8	440031090500	16×28
	19	37	440031040600	5/8×1-1/8	440031090600	16×28
			440031100600	7/8×1-1/8	440031130600	22×28
	23	44	440031100700	7/8×1-1/8	440031130700	22×28
			440031110700	7/8×1-3/8	440031120700	22×35

Pressure Equalization = ¼ in. (6mm) ODF

R134a: Opening Superheat = 4K, K Series

Model	Orifice No.	Capacity [kW]	Connection Flare	
			Code No.	Inlet x Outlet x Eq. [in.]
TCEN	4.5	8	440031200100	3/8×1/2×1/4F
			440031160100	3/8×1/2MIO×1/4F
			440031140100	1/2×5/8×1/4MIO
			440031220100	3/8×1/2ORFS×1/4F
	6.5	12	440031200200	3/8×1/2×1/4F
			440031150200	1/2×5/8×1/4F
			440031160200	3/8×1/2MIO×1/4F
			440031220200	3/8×1/2ORFS×1/4F
	9	17	440031200300	3/8×1/2×1/4F
			440031150300	1/2×5/8×1/4F
			440031190300	5/8×3/4×1/4F
			440031160300	3/8×1/2MIO×1/4F
			440031140300	1/2×5/8×1/4MIO
			440031160300	3/8×1/2MIO×1/4F
			440031180300	5/8×3/4×1/4MIO
			440031220300	3/8×1/2ORFS×1/4F
			440031230300	5/8×3/4ORFS×1/4F
	13	24	440031190400	5/8×3/4×1/4F
			440031180400	5/8×3/4×1/4MIO
TCBEN	15	29	440031190500	5/8×3/4×1/4F
			440031180500	5/8×3/4×1/4MIO
	19	37	440031190600	5/8×3/4×1/4F
			440031180600	5/8×3/4×1/4MIO
	23	44	440031190700	5/8×3/4×1/4F
			440031230700	5/8×3/4ORFS×1/4F

F: Flare; MIO: O-ring; ORFS: Ending Seals

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

Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [mm]
TCES	3.5	7	440011003000	3/8×5/8	440011053000	10×16
			440011013000	1/2×5/8	440011063000	12×16
	4.5	9	440011023100	1/2×7/8	440011073100	12×22
	6.5	14	440011023200	1/2×7/8	440011073200	12×22
			440011013200	1/2×5/8	440011063200	12×16
			440011033200	5/8×7/8	440011083200	16×22
	9	18	440011013300	1/2×5/8	440011063300	12×16
			440011033300	5/8×7/8	440011083300	16×22
	13	26	440011033400	5/8×7/8	440011083400	16×22
			440011043400	5/8×1-1/8	440011093400	16×28
TCBES	15	31	440011033500	5/8×7/8	440011083500	16×22
			440011043500	5/8×1-1/8	440011093500	16×28
	19	39	440011043600	5/8×1-1/8	440011093600	16×28
			440011103600	7/8×1-1/8	440011133600	22×28
	23	45	440011103700	7/8×1-1/8	440011133700	22×28
			440011113700	7/8×1-3/8	440011123700	22×35

Pressure Equalization = ¼ in. (6mm) ODF

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

Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [mm]
TCES	3.5	7	440031003000	3/8×5/8	440031053000	10×16
			440031013000	1/2×5/8	440031063000	12×16
	4.5	9	440031023100	1/2×7/8	440031073100	12×22
	6.5	14	440031023200	1/2×7/8	440031073200	12×22
			440031013200	1/2×5/8	440031063200	12×16
			440031033200	5/8×7/8	440031083200	16×22
	9	18	440031013300	1/2×5/8	440031063300	12×16
			440031023300	1/2×7/8	440031073300	12×16
			440031033300	5/8×7/8	440031083300	16×22
	13	26	440031033400	5/8×7/8	440031083400	16×22
			440031043400	5/8×1-1/8	440031093400	16×22
TCBES	15	31	440031033500	5/8×7/8	440031083500	16×22
			440031043500	5/8×1-1/8	440031093500	16×28
	19	39	440031043600	5/8×1-1/8	440031093600	16×28
			440031103600	7/8×1-1/8	440031133600	22×28
	23	45	440031103700	7/8×1-1/8	440031133700	22×28
			440031113700	7/8×1-3/8	440031123700	22×35

Pressure Equalization = ¼ in. (6mm) ODF

R407C: Opening Superheat = 4K, N series

Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [mm]
TCEZ	3.5	9	440011001000	3/8×5/8	440011051000	10×16
			440011011000	1/2×5/8	440011061000	12×16
	4.5	13	440011021100	1/2×7/8	440011071100	12×22
	6.5	19	440011011200	1/2×5/8	440011061200	12×16
			440011021200	1/2×7/8	440011071200	12×22
			440011031200	5/8×7/8	440011081200	16×22
	9	25	440011031300	5/8×7/8	440011081300	16×22
	13	36	440011031400	5/8×7/8	440011081400	16×22
			440011041400	5/8×1-1/8	440011091400	16×28
TCBEZ	15	42	440011031500	5/8×7/8	440011081500	16×22
			440011041500	5/8×1-1/8	440011091500	16×28
	19	53	440011041600	5/8×1-1/8	440011091600	16×28
			440011101600	7/8×1-1/8	440011131600	22×28
	23	62	440011101700	7/8×1-1/8	440011131700	22×28
			440011111700	7/8×1-3/8	440011121700	22×35

Pressure Equalization = ¼ in. (6mm) ODF

R407C: Opening Superheat = 4K, N series

Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [mm]
TCEZ	3.5	9	440031001000	3/8×5/8	440031051000	10×16
			440031011000	1/2×5/8	440031061000	12×16
	4.5	13	440031021100	1/2×7/8	440031071100	12×22
	6.5	19	440031011200	1/2×5/8	440031061200	12×16
			440031021200	1/2×7/8	440031071200	12×22
			440031031200	5/8×7/8	440031081200	16×22
	9	25	440031031300	5/8×7/8	440031081300	16×22
	13	36	440031031400	5/8×7/8	440031081400	16×22
			440031041400	5/8×1-1/8	440031091400	16×28
TCBEZ	15	42	440031031500	5/8×7/8	440031081500	16×22
			440031041500	5/8×1-1/8	440031091500	16×28
	19	53	440031041600	5/8×1-1/8	440031091600	16×28
			440031101600	7/8×1-1/8	440031131600	22×28
	23	62	440031101700	7/8×1-1/8	440031131700	22×28
			440031111700	7/8×1-3/8	440031121700	22×35

Pressure Equalization = ¼ in. (6mm) ODF

R410A: Opening Superheat = 4K, N series

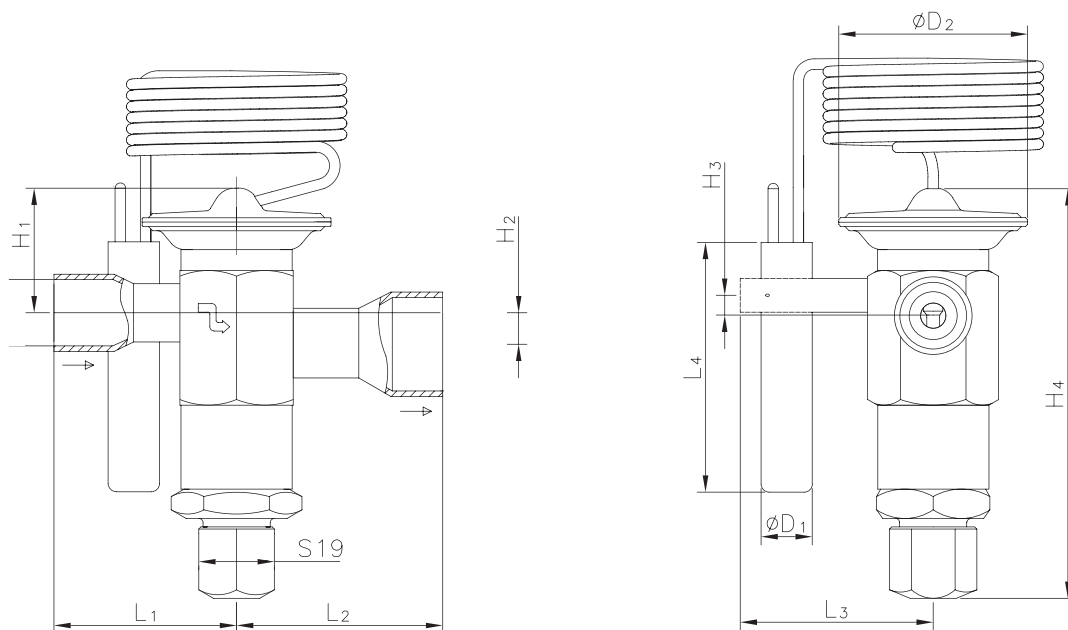
Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [mm]
TCEL	3.5	12	440011005000	3/8×5/8	440011055000	10×16
			440011015000	1/2×5/8	440011065000	12×16
	4.5	16	440011025100	1/2×7/8	440011075100	12×22
	6.5	24	440011015200	1/2×5/8	440011065200	12×16
			440011025200	1/2×7/8	440011075200	12×22
			440011035200	5/8×7/8	440011085200	16×22
	9	32	440011035300	5/8×7/8	440011085300	16×22
	13	45	440011035400	5/8×7/8	440011085400	16×22
			440011045400	5/8×1-1/8	440011095400	16×28
TCBEL	15	54	440011035500	5/8×7/8	440011085500	16×22
			440011045500	5/8×1-1/8	440011095500	16×28
	19	68	440011045600	5/8×1-1/8	440011095600	16×28
			440011105600	7/8×1-1/8	440011135600	22×28
	23	79	440011105700	7/8×1-1/8	440011135700	22×28
			440011115700	7/8×1-3/8	440011125700	22×35

Pressure Equalization = ¼ in. (6mm) ODF

R410A: Opening Superheat = 4K, N series

Model	Orifice No.	Capacity [kW]	Connection Solder			
			Code No.	ODF x ODF [in.]	Code No.	ODF x ODF [mm]
TCEL	3.5	12	440031005000	3/8×5/8	440031055000	10×16
			440031015000	1/2×5/8	440031065000	12×16
	4.5	16	440031025100	1/2×7/8	440031075100	12×22
	6.5	24	440031015200	1/2×5/8	440031065200	12×16
			440031025200	1/2×7/8	440031075200	12×22
			440031035200	5/8×7/8	440031085200	16×22
	9	32	440031035300	5/8×7/8	440031085300	16×22
	13	45	440031035400	5/8×7/8	440031085400	16×22
			440031045400	5/8×1-1/8	440031095400	16×28
TCBEL	15	54	440031035500	5/8×7/8	440031085500	16×22
			440031045500	5/8×1-1/8	440031095500	16×28
	19	68	440031045600	5/8×1-1/8	440031095600	16×28
			440031105600	7/8×1-1/8	440031135600	22×28
	23	79	440031105700	7/8×1-1/8	440031135700	22×28
			440031115700	7/8×1-3/8	440031125700	22×35

Pressure Equalization = ¼ in. (6mm) ODF



Model	Connection ODFXODF		Capillary Length [m]	H1 [mm]	H2 [mm]	H3 [mm]	H4 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	ΦD1 [mm]	ΦD2 [mm]	Weight [kg]
	[in.]	[mm]												
TCE	3/8x5/8	10x16	1500	30	7.5	3	98	44	44	44	62	12.7	45	0.45
	1/2x5/8	12x16							49					
	1/2x7/8	12x22												
	5/8x7/8	16x22												
	5/8x9/8	16x28							61					
TCBE	5/8x7/8	16x22	1500	33	9	6	106	51	58	44	76	19	53	0.6
	5/8x9/8	16x28						61						
	7/8x9/8	22x28												
	7/8x11/8	22x35							58					

Thermostatic Expansion Valves

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;
- Straight flow channel structure;
- Versions with and without check valve;
- Product with BP function or special installation, please contact us;
- Connection possibilities: Solder and Chatleff

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: 4.7 MPa

Options for Connections: ODF (3/8, 1/2, 5/8), ODM, etc.

Equalization: 1/4 in. (ODF)

1/8 in. (ODF/ODM)

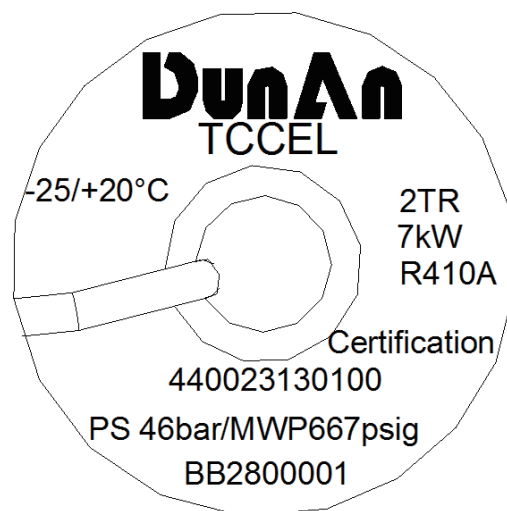
Capillary Tube: 800 mm



Identification

Example

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



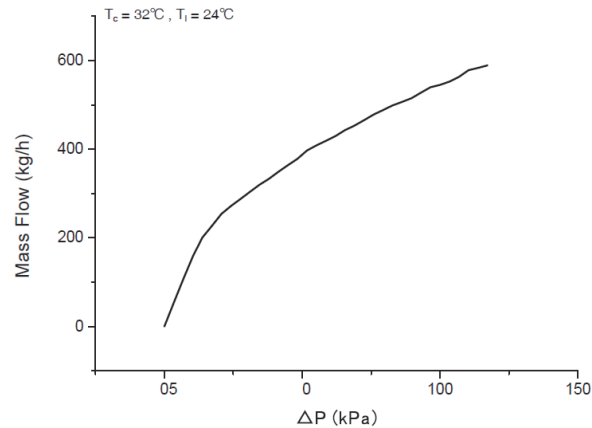
Nominal Capacity

Orifice No.	Nominal Capacity					
	[kW]					
	R407C	R410A	R134a	R404A/R507	R290	R32
1	5.8	7.0	4.6	4.3	6.1	10.0
2	7.2	8.8	5.7	5.4	7.7	12.6
3	8.8	10.5	6.8	6.5	9.2	15.1
4	10.1	12.3	8.0	7.6	10.7	17.6
5	11.5	14.0	9.1	8.8	12.3	20.1
6	14.4	17.5	11.4	10.9	15.3	25.1
7	17.3	21.0	13.7	13.0	18.4	30.1
8	20.2	24.5	15.9	15.2	21.5	35.1

The nominal capacity is based on:

1. Evaporating Temperature $T_e = 5^\circ\text{C}$; 2. Liquid Temperature $T_l = 28^\circ\text{C}$;
3. Condensing Temperature $T_c = 32^\circ\text{C}$; 4. Opening Superheat $O_s = 4\text{K}$

Check Valve Capacity



Ordering

Product Coding

Thermal Expansion Valve	4400	TCCE
Evaporating Temperature Range	2	K-Series (-25°C ~20°C)
	4	N-Series (-40°C ~10°C)
Refrigerant	1	R134a
	2	R404A
	3	R410A
	4	R407C
	5	R290
	6	R32
Orifice No.	1	1
	2	2
	3	3
	4	4
	5	5
	6	6
	7	7
	8	8
Check Valve	3	With check valve
	4	Without check valve
Connection 01~16: Adjustable 51~66: Non-adjustable	01/51	3/8×3/8×1/4 ODF
	02/52	3/8×3/8×1/8 ODF
	03/53	3/8×1/2×1/4 ODF
	04/54	3/8×1/2×1/8 ODF
	05/55	1/2×1/2×1/4 ODF
	06/56	1/2×1/2×1/8 ODF
	07/57	1/2×5/8×1/4 ODF
	08/58	1/2×5/8×1/8 ODF
	09/59	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)
	10/60	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)
	11/61	5/8(Chatleff)×5/8(Aeroquip)×1/8(635mm)
	12/62	5/8(Chatleff)×5/8(Aeroquip)×7/16(nut)
	13/63	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)
	14/64	3/8(ODF)×5/8(Aeroquip)×7/16(nut)
	15/65	3/4(Chatleff)×3/4(Aeroquip)×1/8(635mm)
	16/66	3/4(Chatleff)×3/4(Aeroquip)×7/16(nut)
Reserved	00	-

Example

TCCE Series for R410

Orifice No.	Connection [in.] (Inlet x Outlet x Equ.)	With Check Valve Adjustable	With Check Valve Non-adjustable	Without Check Valve Adjustable	Without Check Valve Non- adjustable
1	3/8×3/8×1/4 ODF	440023130100	440023135100	440023140100	440023145100
	3/8×3/8×1/8 ODF	440023130200	440023135200	440023140200	440023145200
	3/8×1/2×1/4 ODF	440023130300	440023135300	440023140300	440023145300
	3/8×1/2×1/8 ODF	440023130400	440023135400	440023140400	440023145400
	1/2×1/2×1/4 ODF	440023130500	440023135500	440023140500	440023145500
	1/2×1/2×1/8 ODF	440023130600	440023135600	440023140600	440023145600
	1/2×5/8×1/4 ODF	440023130700	440023135700	440023140700	440023145700
	1/2×5/8×1/8 ODF	440023130800	440023135800	440023140800	440023145800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023130900	440023135900	440023140900	440023145900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023131000	440023136000	440023141000	440023146000
	5/8(Chatteff)×5/8(Aeroquip)×1/8(635mm)	440023131100	440023136100	440023141100	440023146100
	5/8(Chatteff)×5/8(Aeroquip)×7/16(nut)	440023131200	440023136200	440023141200	440023146200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023131300	440023136300	440023141300	440023146300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023131400	440023136400	440023141400	440023146400
	3/4(Chatteff)×3/4(Aeroquip)×1/8(635mm)	440023131500	440023136500	440023141500	440023146500
	3/4(Chatteff)×3/4(Aeroquip)×7/16(nut)	440023131600	440023136600	440023141600	440023146600
2	3/8×3/8×1/4 ODF	440023230100	440023235100	440023240100	440023245100
	3/8×3/8×1/8 ODF	440023230200	440023235200	440023240200	440023245200
	3/8×1/2×1/4 ODF	440023230300	440023235300	440023240300	440023245300
	3/8×1/2×1/8 ODF	440023230400	440023235400	440023240400	440023245400
	1/2×1/2×1/4 ODF	440023230500	440023235500	440023240500	440023245500
	1/2×1/2×1/8 ODF	440023230600	440023235600	440023240600	440023245600
	1/2×5/8×1/4 ODF	440023230700	440023235700	440023240700	440023245700
	1/2×5/8×1/8 ODF	440023230800	440023235800	440023240800	440023245800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023230900	440023235900	440023240900	440023245900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023231000	440023236000	440023241000	440023246000
	5/8(Chatteff)×5/8(Aeroquip)×1/8(635mm)	440023231100	440023236100	440023241100	440023246100
	5/8(Chatteff)×5/8(Aeroquip)×7/16(nut)	440023231200	440023236200	440023241200	440023246200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023231300	440023236300	440023241300	440023246300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023231400	440023236400	440023241400	440023246400
	3/4(Chatteff)×3/4(Aeroquip)×1/8(635mm)	440023231500	440023236500	440023241500	440023246500
	3/4(Chatteff)×3/4(Aeroquip)×7/16(nut)	440023231600	440023236600	440023241600	440023246600

TCCE Series for R410

Orifice No.	Connection [in.] (Inlet x Outlet x Equ.)	With Check Valve Adjustable	With Check Valve Non-adjustable	Without Check Valve Adjustable	Without Check Valve Non- adjustable
3	3/8×3/8×1/4 ODF	440023330100	440023335100	440023340100	440023345100
	3/8×3/8×1/8 ODF	440023330200	440023335200	440023340200	440023345200
	3/8×1/2×1/4 ODF	440023330300	440023335300	440023340300	440023345300
	3/8×1/2×1/8 ODF	440023330400	440023335400	440023340400	440023345400
	1/2×1/2×1/4 ODF	440023330500	440023335500	440023340500	440023345500
	1/2×1/2×1/8 ODF	440023330600	440023335600	440023340600	440023345600
	1/2×5/8×1/4 ODF	440023330700	440023335700	440023340700	440023345700
	1/2×5/8×1/8 ODF	440023330800	440023335800	440023340800	440023345800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023330900	440023335900	440023340900	440023345900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023331000	440023336000	440023341000	440023346000
	5/8(Chatleff)×5/8(Aeroquip)×1/8(635mm)	440023331100	440023336100	440023341100	440023346100
	5/8(Chatleff)×5/8(Aeroquip)×7/16(nut)	440023331200	440023336200	440023341200	440023346200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023331300	440023336300	440023341300	440023346300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023331400	440023336400	440023341400	440023346400
	3/4(Chatleff)×3/4(Aeroquip)×1/8(635mm)	440023331500	440023336500	440023341500	440023346500
	3/4(Chatleff)×3/4(Aeroquip)×7/16(nut)	440023331600	440023336600	440023341600	440023346600
4	3/8×3/8×1/4 ODF	440023430100	440023435100	440023440100	440023445100
	3/8×3/8×1/8 ODF	440023430200	440023435200	440023440200	440023445200
	3/8×1/2×1/4 ODF	440023430300	440023435300	440023440300	440023445300
	3/8×1/2×1/8 ODF	440023430400	440023435400	440023440400	440023445400
	1/2×1/2×1/4 ODF	440023430500	440023435500	440023440500	440023445500
	1/2×1/2×1/8 ODF	440023430600	440023435600	440023440600	440023445600
	1/2×5/8×1/4 ODF	440023430700	440023435700	440023440700	440023445700
	1/2×5/8×1/8 ODF	440023430800	440023435800	440023440800	440023445800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023430900	440023435900	440023440900	440023445900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023431000	440023436000	440023441000	440023446000
	5/8(Chatleff)×5/8(Aeroquip)×1/8(635mm)	440023431100	440023436100	440023441100	440023446100
	5/8(Chatleff)×5/8(Aeroquip)×7/16(nut)	440023431200	440023436200	440023441200	440023446200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023431300	440023436300	440023441300	440023446300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023431400	440023436400	440023441400	440023446400
	3/4(Chatleff)×3/4(Aeroquip)×1/8(635mm)	440023431500	440023436500	440023441500	440023446500
	3/4(Chatleff)×3/4(Aeroquip)×7/16(nut)	440023431600	440023436600	440023441600	440023446600

TCCE Series for R410

Orifice No.	Connection [in.] (Inlet x Outlet x Equ.)	With Check Valve Adjustable	With Check Valve Non-adjustable	Without Check Valve Adjustable	Without Check Valve Non-adjustable
5	3/8×3/8×1/4 ODF	440023530100	440023535100	440023540100	440023545100
	3/8×3/8×1/8 ODF	440023530200	440023535200	440023540200	440023545200
	3/8×1/2×1/4 ODF	440023530300	440023535300	440023540300	440023545300
	3/8×1/2×1/8 ODF	440023530400	440023535400	440023540400	440023545400
	1/2×1/2×1/4 ODF	440023530500	440023535500	440023540500	440023545500
	1/2×1/2×1/8 ODF	440023530600	440023535600	440023540600	440023545600
	1/2×5/8×1/4 ODF	440023530700	440023535700	440023540700	440023545700
	1/2×5/8×1/8 ODF	440023530800	440023535800	440023540800	440023545800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023530900	440023535900	440023540900	440023545900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023531000	440023536000	440023541000	440023546000
	5/8(Chatleff)×5/8(Aeroquip)×1/8(635mm)	440023531100	440023536100	440023541100	440023546100
	5/8(Chatleff)×5/8(Aeroquip)×7/16(nut)	440023531200	440023536200	440023541200	440023546200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023531300	440023536300	440023541300	440023546300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023531400	440023536400	440023541400	440023546400
	3/4(Chatleff)×3/4(Aeroquip)×1/8(635mm)	440023531500	440023536500	440023541500	440023546500
	3/4(Chatleff)×3/4(Aeroquip)×7/16(nut)	440023531600	440023536600	440023541600	440023546600
6	3/8×3/8×1/4 ODF	440023630100	440023635100	440023640100	440023645100
	3/8×3/8×1/8 ODF	440023630200	440023635200	440023640200	440023645200
	3/8×1/2×1/4 ODF	440023630300	440023635300	440023640300	440023645300
	3/8×1/2×1/8 ODF	440023630400	440023635400	440023640400	440023645400
	1/2×1/2×1/4 ODF	440023630500	440023635500	440023640500	440023645500
	1/2×1/2×1/8 ODF	440023630600	440023635600	440023640600	440023645600
	1/2×5/8×1/4 ODF	440023630700	440023635700	440023640700	440023645700
	1/2×5/8×1/8 ODF	440023630800	440023635800	440023640800	440023645800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023630900	440023635900	440023640900	440023645900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023631000	440023636000	440023641000	440023646000
	5/8(Chatleff)×5/8(Aeroquip)×1/8(635mm)	440023631100	440023636100	440023641100	440023646100
	5/8(Chatleff)×5/8(Aeroquip)×7/16(nut)	440023631200	440023636200	440023641200	440023646200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023631300	440023636300	440023641300	440023646300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023631400	440023636400	440023641400	440023646400
	3/4(Chatleff)×3/4(Aeroquip)×1/8(635mm)	440023631500	440023636500	440023641500	440023646500
	3/4(Chatleff)×3/4(Aeroquip)×7/16(nut)	440023631600	440023636600	440023641600	440023646600

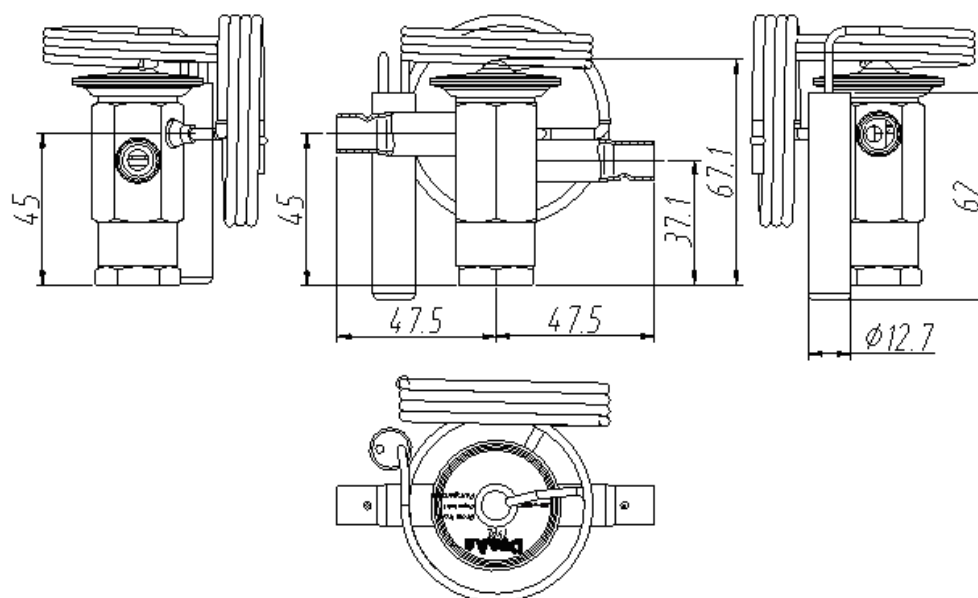
TCCE Series for R410

Orifice No.	Connection [in.] (Inlet x Outlet x Equ.)	With Check Valve Adjustable	With Check Valve Non-adjustable	Without Check Valve Adjustable	Without Check Valve Non- adjustable
7	3/8×3/8×1/4 ODF	440023730100	440023735100	440023740100	440023745100
	3/8×3/8×1/8 ODF	440023730200	440023735200	440023740200	440023745200
	3/8×1/2×1/4 ODF	440023730300	440023735300	440023740300	440023745300
	3/8×1/2×1/8 ODF	440023730400	440023735400	440023740400	440023745400
	1/2×1/2×1/4 ODF	440023730500	440023735500	440023740500	440023745500
	1/2×1/2×1/8 ODF	440023730600	440023735600	440023740600	440023745600
	1/2×5/8×1/4 ODF	440023730700	440023735700	440023740700	440023745700
	1/2×5/8×1/8 ODF	440023730800	440023735800	440023740800	440023745800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023730900	440023735900	440023740900	440023745900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023731000	440023736000	440023741000	440023746000
	5/8(Chatleff)×5/8(Aeroquip)×1/8(635mm)	440023731100	440023736100	440023741100	440023746100
	5/8(Chatleff)×5/8(Aeroquip)×7/16(nut)	440023731200	440023736200	440023741200	440023746200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023731300	440023736300	440023741300	440023746300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023731400	440023736400	440023741400	440023746400
	3/4(Chatleff)×3/4(Aeroquip)×1/8(635mm)	440023731500	440023736500	440023741500	440023746500
	3/4(Chatleff)×3/4(Aeroquip)×7/16(nut)	440023731600	440023736600	440023741600	440023746600
8	3/8×3/8×1/4 ODF	440023830100	440023835100	440023840100	440023845100
	3/8×3/8×1/8 ODF	440023830200	440023835200	440023840200	440023845200
	3/8×1/2×1/4 ODF	440023830300	440023835300	440023840300	440023845300
	3/8×1/2×1/8 ODF	440023830400	440023835400	440023840400	440023845400
	1/2×1/2×1/4 ODF	440023830500	440023835500	440023840500	440023845500
	1/2×1/2×1/8 ODF	440023830600	440023835600	440023840600	440023845600
	1/2×5/8×1/4 ODF	440023830700	440023835700	440023840700	440023845700
	1/2×5/8×1/8 ODF	440023830800	440023835800	440023840800	440023845800
	3/8(OEM1)×5/8(Aeroquip)×1/8(635mm)	440023830900	440023835900	440023840900	440023845900
	3/8(OEM2)×5/8(Aeroquip)×1/8(635mm)	440023831000	440023836000	440023841000	440023846000
	5/8(Chatleff)×5/8(Aeroquip)×1/8(635mm)	440023831100	440023836100	440023841100	440023846100
	5/8(Chatleff)×5/8(Aeroquip)×7/16(nut)	440023831200	440023836200	440023841200	440023846200
	3/8(ODF)×5/8(Aeroquip)×1/8(635mm)	440023831300	440023836300	440023841300	440023846300
	3/8(ODF)×5/8(Aeroquip)×7/16(nut)	440023831400	440023836400	440023841400	440023846400
	3/4(Chatleff)×3/4(Aeroquip)×1/8(635mm)	440023831500	440023836500	440023841500	440023846500
	3/4(Chatleff)×3/4(Aeroquip)×7/16(nut)	440023831600	440023836600	440023841600	440023846600

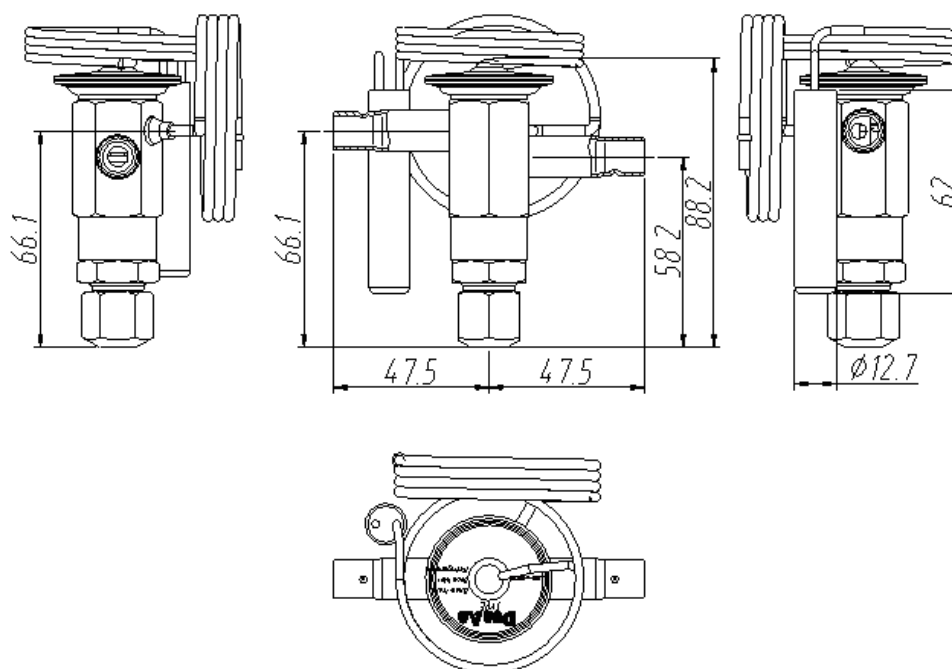
Note: Please issue orders of other TCCE product in the way presented in the table below.

Dimensions and weights

Fixed setting



Adjustable setting

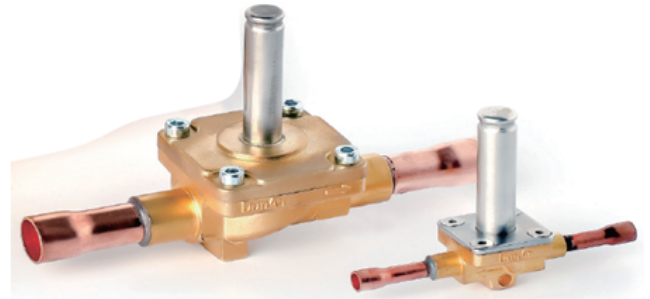


Solenoid Valve

FDF Series(commmercial)

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;
- Special seal gasket;
- NC (normally closed);
- Available with versions with and without bracket.

Approvals

TUV, declaration according to LVD or PED

Technical Data

Applicable Refrigerants: R134a, 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

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]
FDF02/02B	0	3.1	1.8	4.5	0.16	0.4
FDF03/03B					0.27	
FDF06/06B	0.2				0.8	0.6
FDF10/10B					1.9	0.7
FDF15/15B				4.2	2.6	1.0
FDF20/20B					6.0	1.5
FDF22/22B					8.0	1.5
FDF25					10.0	3.0
FDF32	0.03			16.0	4.3	
FDF40				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 K_v value is the water flow at a differential pressure of 0.1 MPa.

Flow Unit: m³/h; Density: 1000 kg/m³.

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
FDF02/02B	2.9	2.2	3	3.4	-	-	-	-	1.2	1.2	1.5	1.7
FDF03/03B	5	3.8	5.1	5.8	-	-	-	-	2	2	2.4	3.0
FDF06/06B	15	11	15	17	1.3	1.6	1.7	2.2	5.9	6	7.2	8.8
FDF10/10B	35	27	36	40	3.1	3.9	4	5.3	14	14	17	21
FDF15/15B	48	37	49	55	4.2	5.3	5.4	7.2	19	20	23	28.6
FDF20/20B	107	80	109	121	9	12	12	15.4	43	44	52	56.1
FDF22/22B	138	105	142	160	12	15	15	19	55	56	68	72.9
FDF25	186	141	189	215	16.3	20.4	21	27.8	73	75	90	110
FDF32	297	225	303	345	26.1	32.6	33.6	44.7	117	120	144	176
FDF40	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 $t_e = -10^\circ\text{C}$, liquid temperature ahead of valve $t_l = 25^\circ\text{C}$, pressure drop in valve $\Delta P = 0.15$ bar.

⁽²⁾ Rated hot gas capacity is based on condensing temperature $t_c = 40^\circ\text{C}$, pressure drop in valve $\Delta P = 0.8$ bar, hot gas temperature $t_h = 65^\circ\text{C}$, and subcooling of refrigerant $\Delta t_{\text{sub}} = 4\text{K}$.

Ordering

Flare Connection: NC (normally closed)

Model	SAE Connections			Actuation
	Connection Size		Code NO.	
FDF02	1/4	6	330018000102	Direct
FDF02B			330018000104	
FDF03	1/4	6	330017000102	
FDF03B			330017000107	
FDF03	3/8	10	330016000102	
DFD03B			330016000106	
FDF06	3/8	10	330015000102	Diaphragm
FDF06B			330015000106	
FDF06	1/2	12	330014000102	
FDF06B			330014000106	
FDF10	1/2	12	330013000102	
FDF10B			330013000107	
FDF10	5/8	16	330012000102	
FDF10B			330012000106	
FDF15	5/8	16	330011000102	
FDF15B			330011000105	
FDF15	7/8	22	330010000102	
FDF15B			330010000104	

Note: Versions with bracket are designated by suffix letter 'B'

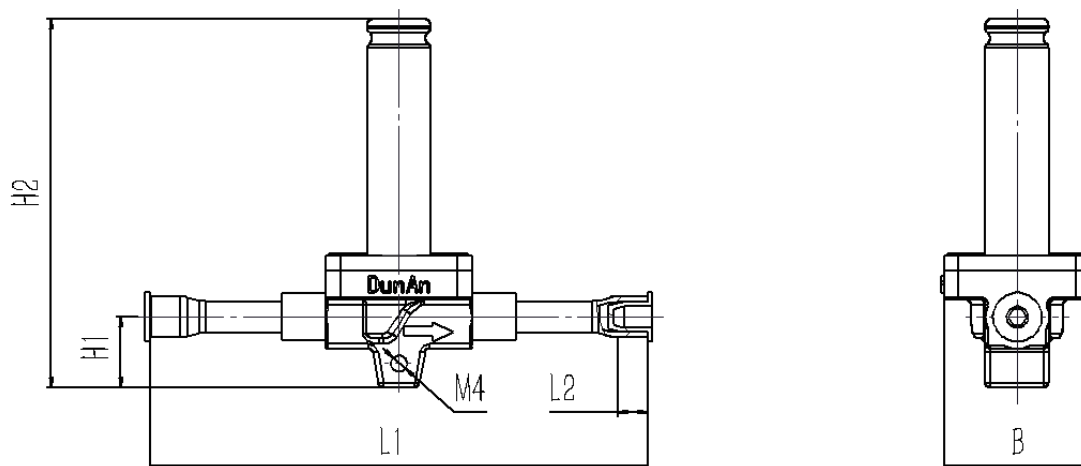
Solder Connection: NC (normally closed)

Model	ODF Connection				
	Connection Size [In.]	Code NO.	Actuation	Connection Size [mm.]	Code NO.
FDF02	1/4	330018000101	Direct	6	330018000201
FDF02B		330018000103			330018000202
FDF03	1/4	330017000101		6	330017000201
	3/8	330016000101		10	330016000201
FDF03B	1/4	330017000106		6	330017000202
	3/8	330016000105		10	330016000202
FDF06	3/8	330015000101	Diaphragm	10	330015000201
	1/2	330014000101		12	330014000201
FDF06B	3/8	330015000105		10	330015000202
	1/2	330014000105		12	330014000202
FDF10	1/2	330013000101		12	330013000201
	5/8	330012000101		16	330012000101
FDF10B	1/2	330013000103		12	330013000202
	5/8	330012000105		16	330012000105
FDF15	5/8	330011000101		16	330011000101
	3/4	330021000101		19	330021000101
	7/8	330010000101		22	330010000101
FDF15B	5/8	330011000104		16	330011000104
	3/4	330021000102		19	330021000102
	7/8	330010000103		22	330010000103
FDF20	3/4	330020000101		19	330020000101
	7/8	330009000101		22	330009000101
	9/8	330008000101		28	330008000201
FDF20B	3/4	330020000102		19	330020000102
	7/8	330009000102		22	330009000102
	9/8	330008000102		28	330008000202
FDF22	11/8	330007000101		35	330007000101
FDF22B		330007000102			330007000102
FDF25	9/8	330006000101	Piston	28	330006000201
	11/8	330005000101		35	330005000101
FDF32	11/8	330004000101		35	330004000101
	13/8	330003000101		42	330003000101
FDF40	13/8	330002000101		42	330002000101
	17/8	330001000101		54	330001000101

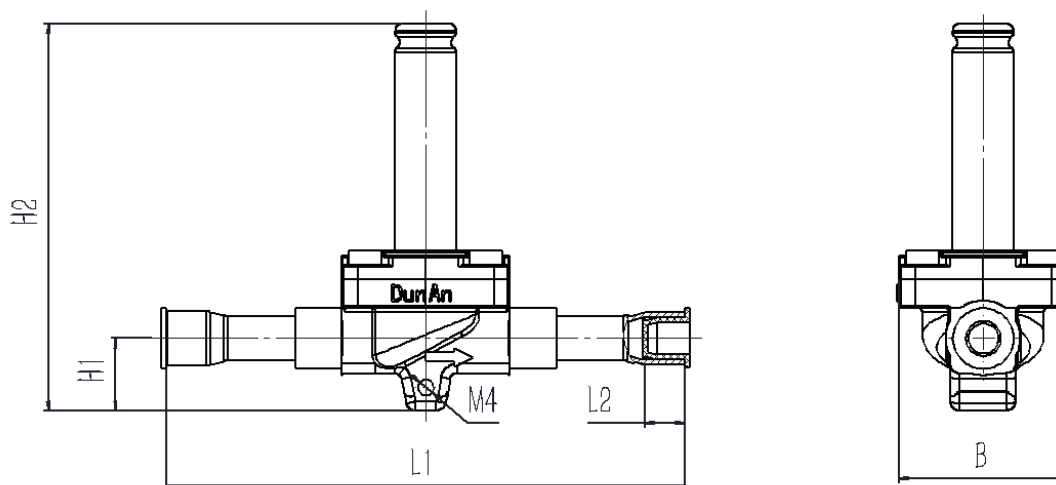
Note: Versions with bracket are designated by suffix letter 'B'

Dimensions

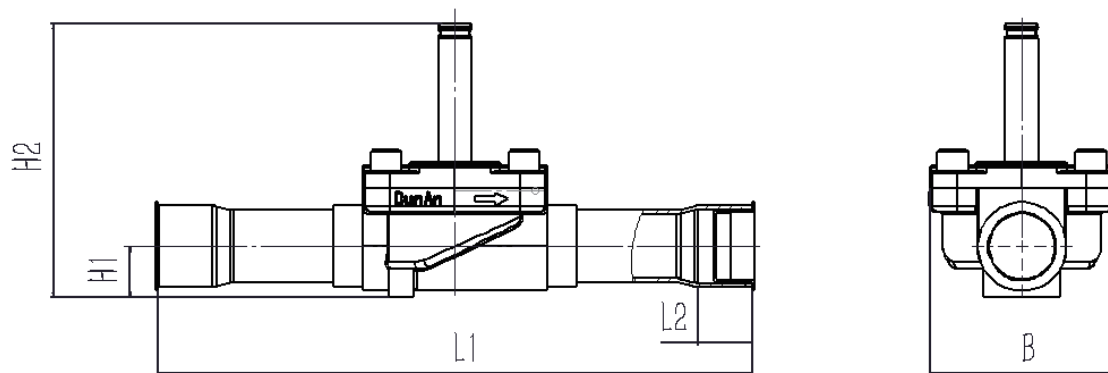
Solder Connection



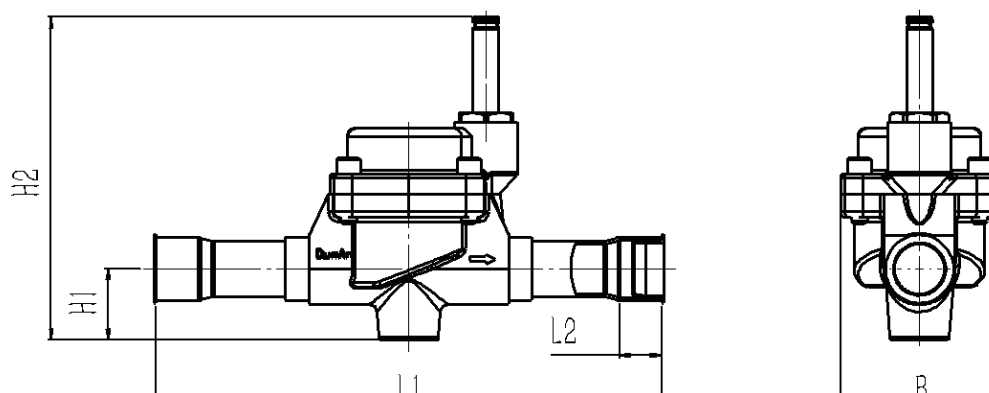
Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF02/02B	1/4	6	12	76	102	7	30
FDF03/03B	1/4	6	12	76	102	7	30
	3/8	10	12	76	108	9	30



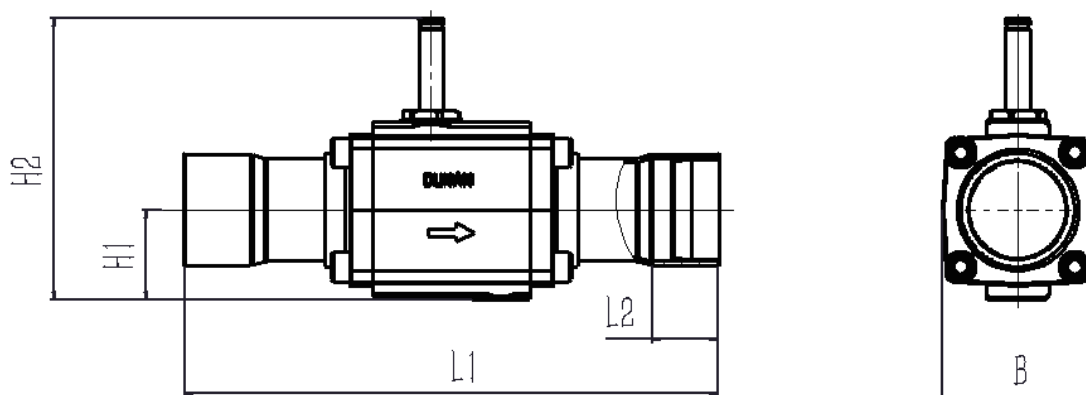
Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF06/06B	3/8	10	13	80	112	9	36
	1/2	12	13	80	128	10	36
FDF10/10B	1/2	12	17	95	128	10	46
	5/8	16	17	95	156	12	46



Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF15/15B	5/8	16	18	100	166	12	56
	3/4	19	18	100	166	17	56
	7/8	22	18	100	176	17	56
FDF20/20B	3/4	19	20	107	182	17	72
	7/8	22	20	107	182	17	72
	9/8	28	20	107	232	22	72
FDF22/22B	11/8	35	20	107	258	25	72

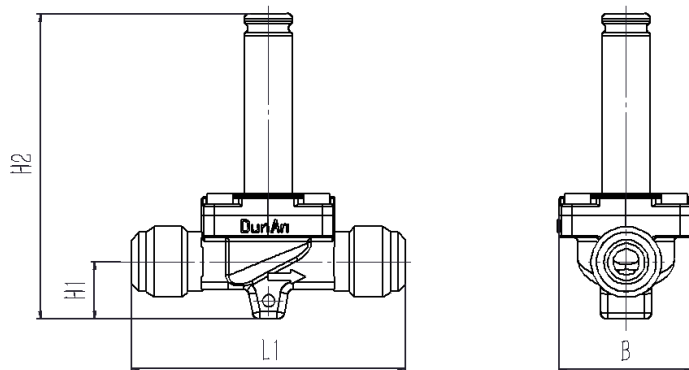


Model	Connection		H1	H2	L1	L2	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF25	9/8	28	36	164	256	22	80
	11/8	35	36	164	281	25	80



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

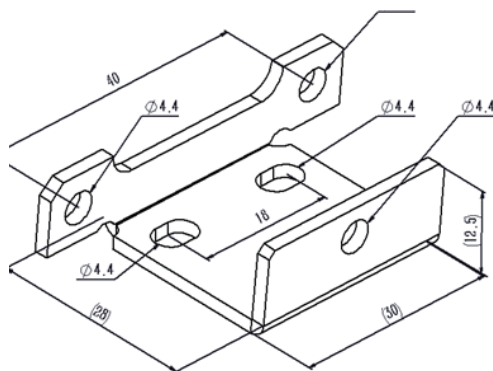
Flare Connection



Model	Connection		H1	H2	L1	B
	[in.]	[mm]	[mm]	[mm]	[mm]	[mm]
FDF02/02B	1/4	6	12	76	58	30
FDF03/03B	1/4	6	12	76	58	30
	3/8	10	12	76	64	30
FDF06/06B	3/8	10	13	80	70	36
	1/2	12	13	80	74	36
FDF10/10B	1/2	12	17	95	86	46
	5/8	16	17	95	92	46
FDF15/15B	5/8	16	18	100	106	56
	7/8	22	18.0	100	106	56

Note: Products will be delivered with bracket kit

Bracket



Coils

Parameters

- Ambient Temperature: -20°C~+55°C
- Applicable Relative Humidity: ≤95%
- Allowable Voltage Range: AC: 85%~110%
- Insulation Class: F

Model	Voltage	Frequency	Protection	Connection	Code
FDFXQ-02	220AC	50/60Hz	IP65	DIN	335101000204
FDFXQ-03	110AC	50/60Hz	IP65	DIN	335101000304
FDFXQ-05	24AC	50/60Hz	IP65	DIN	335101000504

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

- Variants of angleway and straightway type are selectable;
- NO (normally open) and NC (normally closed) versions are available;
- 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

IECEEx, LVD or PED

Technical Data

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

Medium Temperature: -30°C~+105°C

Ambient Temperature: -40°C~+55°C

Applicable Relative Humidity: ≤95%

Model	Version	Actuation	Port Size	K _v	Ps	OPD	
						Max	Min
			[mm]	[m ³ /h]	[MPa]	[MPa]	[MPa]
FDF2KA-010	N.O	Direct	1.8	0.08	4.5	1.5	0
FDF2A-010	N.C		2.0	0.08		3.4	
FDF2.2A-010			2.2	0.13		2.1	
FDF2.5A-010			2.5	0.16		2.1	
FDF6A-010		Pilot	5.8	0.56		3.4	0.01

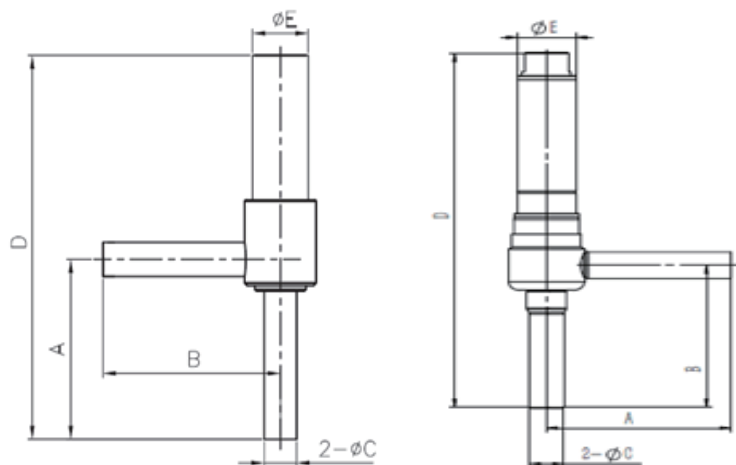
Nominal Capacit

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
FDF2KA-010	0.6	1.4	0.5	0.7	1.0	0.1	0.1	0.1	0.1	0.1	0.2	0.4	0.3	0.4	0.4
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°C; Liquid Temp. Before Valve: T_l=25°C; Pressure Drop After the Valve ΔP=0.015 MPa.

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

Ordering & Dimensions



Model	Code	Style	Connection Φ C	Dimensions			
				E	D	A	B
			[mm]	[mm]	[mm]	[mm]	[mm]
FDF2KA-010	320005006400	B	6.35	10.9	85	34.5	34
FDF2A-010	320005003800	A	6.35	10.9	72	33	35
FDF2.2A-010	320005003900	A	6.35	10.9	72	33	35
FDF2.5A-010	320006000500	A	6.35	11.3	81	33	36
FDF6A-010	320009003400	A	7.94	11.3	80	33	35.6

Coils

Model	Voltage	Frequency	Protection	Insulation Class	Connection	Code	Valve
FDFX-046	100AC	50/60Hz	IP65	B	Cable with 0.6m	321013006700	FDF2A-010 FDF2.2A-010 F2.5A-010 FDF6A-010
FDFX-047	110AC					321005011700	
FDFX-048	200AC					321013006800	
FDFX-049	220AC					321005009600	
FDFX-050	230AC					321009000600	
FDFX02-0199	220-240AC					321005011500	FDF2KA-010

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

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)

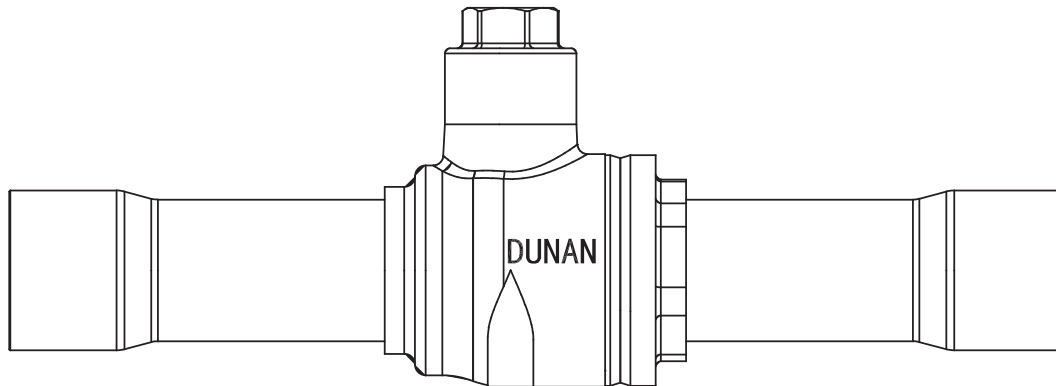
Max. Operating Pressure: 4.5 MPa (DN40~DN75)

Applicable Relative Humidity: ≤95%

Max. Leakage Rate<2.83g/year

Ordering

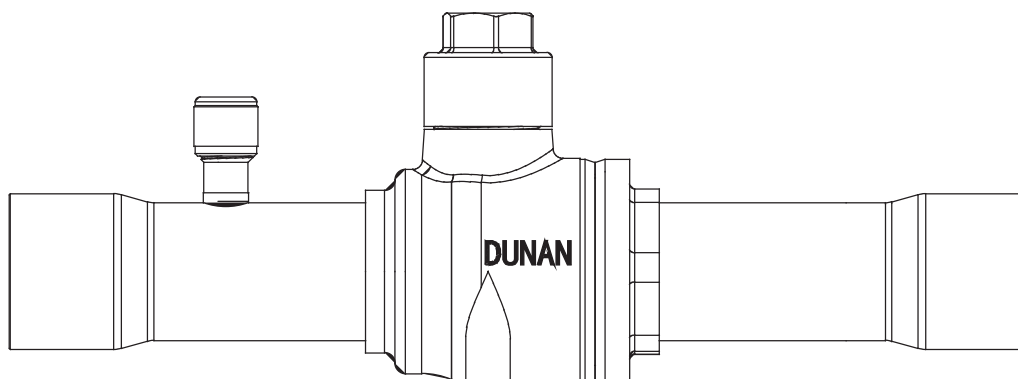
Without Access Port



Model	ODF Connection				K _v Value ⁽¹⁾ [m ³ /h]
	Port Size [in.]	Code No.	Port Size [mm]	Code No.	
FQ 06	1/4	380004011000	6	380004011200	0.89
FQ 10	3/8	380008011000	10	380008011200	1.96
FQ 12	1/2	380010011000	12	380010011200	5.3
FQ 16	5/8	380013011000	16	380013011000	10.4
FQ 19	3/4	380015011000	19	380015011000	15.7
FQ 22	7/8	380020011000	22	380020011000	23.6
FQ 28	9/8	380025011000	28	380025011200	43.8
FQ 35	11/8	380032011000	35	380032011000	76.8
FQ 42	13/8	380040011000	42	380040011200	98.5
FQ 54	17/8	380050011000	54	380050011000	210.3
FQ 67	21/8	380065011000	-	-	346.6
FQ 79	25/8	380075011000	-	-	477.6

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

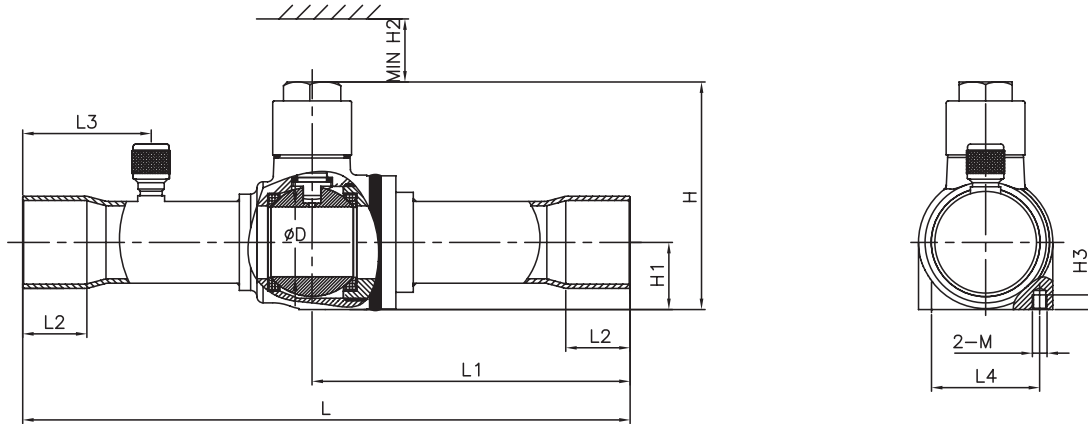
With Access Port



Model	ODF Connection				K _v Valve ⁽¹⁾ [m ³ /h]
	Port Size [in.]	Code No.	Port Size [mm]	Code No.	
FQ 10	3/8	380008011600	10	380008011800	1.96
FQ 12	1/2	380010011600	12	380010011800	5.3
FQ 16	5/8	380013011600	16	380013011600	10.4
FQ 19	3/4	380015011600	19	380015011600	15.7
FQ 22	7/8	380020011600	22	380020011600	23.6
FQ 28	9/8	380025011600	28	380025011800	43.8
FQ 35	11/8	380032011600	35	380032011600	76.8
FQ 42	13/8	380040011600	42	380040011800	98.5
FQ 54	17/8	380050011600	54	380050011600	210.3
FQ 67	21/8	380065011600	-	-	346.6
FQ 79	25/8	380075011600	-	-	477.6

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

Dimensions



Without Access Port

Model	Connection Size		D [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Screw M [mm]
	[in]	[mm]											
FQ 06	1/4	6	10	155.1	82.9	8	-	16	52	16.5	21	5	M5×0.8
FQ 10	3/8	10	10	138.5	74.6	10	-	16	52	16.5	21	5	M5×0.8
FQ 12	1/2	12	10	138.5	74.6	10	-	16	52	16.5	21	5	M5×0.8
FQ 16	5/8	16	12.5	160	85	12.5	-	19	53	16	21	5	M5×0.8
FQ 19	3/4	19	19	160.5	84.5	17	-	29.5	66	19.3	24	5	M5×0.8
FQ 22	7/8	22	19	184.5	97	17	-	29.5	66	19.3	24	5	M5×0.8
FQ 28	9/8	28	24	208	109	22	-	37	78	23	24	5	M5×0.8
FQ 35	1 1/8	35	38	251.5	131.7	25	-	58	105.7	35	28	10	M6×1.0
FQ 42	1 3/8	42	38	280	146	28	-	58	105.7	35	28	10	M6×1.0
FQ 54	1 7/8	54	50	305	157.5	35	-	78	125	45	28	10	M6×1.0
FQ 67	2 1/8	-	63	343.5	177.5	37	-	89	146.5	55	32	15	M10×1.0
FQ 79	2 5/8	-	74	408	208	42	-	114	177	67	32	15	M10×1.0

With Access Port

Model	Connection Size		D [mm]	L [mm]	L1 [mm]	L2 [mm]	L3 [mm]	L4 [mm]	H [mm]	H1 [mm]	H2 [mm]	H3 [mm]	Screw M [mm]
	[in]	[mm]											
FQ 10	3/8	10	10	138.5	74.6	10	29	16	52	16.5	21	5	M5×0.8
FQ 12	1/2	12	10	138.5	74.6	10	29	16	52	16.5	21	5	M5×0.8
FQ 16	5/8	16	12.5	160	85	12.5	31	19	53	16	21	5	M5×0.8
FQ 19	3/4	19	19	160.5	84.8	17	34	29.5	66	19.3	24	5	M5×0.8
FQ 22	7/8	22	19	184.5	97	17	37	29.5	66	19.3	24	5	M5×0.8
FQ 28	9/8	28	24	208	109	22	44	37	78	23	24	5	M5×0.8
FQ 35	1 1/8	35	38	251.5	131.7	25	53	58	105.7	35	28	10	M6×1.0
FQ 42	1 3/8	42	38	280	146	28	57	58	105.7	35	28	10	M6×1.0
FQ 54	1 7/8	54	50	305	157.5	35	61	78	125	45	28	10	M6×1.0
FQ 67	2 1/8	-	63	343.5	177.5	37	72	89	146.5	55	32	15	M10×1.0
FQ 79	2 5/8	-	74	408	208	42	79	114	177	67	32	15	M10×1.0

Filter Drier

DQA/DZA Series

Application

DQA/DZA series filter driers are usually used in liquid line of refrigeration system to protect from moisture, acids, and foreign solid particles. DQA series adopt a core of 100% molecular sieve, while DZA series have a core of 80% molecular sieve and 20% activated alumina.



Features

- Large capacity for absorbed water and acid or dirty matters;
- Fine mesh provides efficient filtering performance under operating conditions;
- Supporting structure can effectively buffer the influence of vibration on inner components.

Approvals

UL/CE, Declaration according to PED

Nomenclature

Filter Drier	D	-
Solid Core	Q	100% 3A molecular sieve
	Z	80% 3A molecular sieve + 20% active aluminum
Application	A	Uni-flow
Size(volume)	03	3 in. ³
	05	5 in. ³
	08	8 in. ³
	10	10 in. ³
	16	16 in. ³
	30	30 in. ³
	41	41 in. ³
	60	60 in. ³
	75	75 in. ³
Connection (filter connection in 1/8 of an inch increments)	2	1/4 in.
	2.5	5/16 in.
	3	3/8 in.
	4	1/2 in.
	5	5/8 in.
	6	3/4 in.
	7	7/8 in.
	9	1-1/8 in.
Connection Type	(blank)	flare Connection
	S	solder connection
Structure	(blank)	-
	-2	Second generation

Technical Data

Applicable Refrigerants: R134a, R407C, R410A, and R404A

Max. Operating Pressure: 4.6 MPa

Medium Temperature: -40°C ~ +80°C

Ambient Temperature: -40°C ~ +55°C

Applicable Relative Humidity: ≤95%

Selection

Model		DQA	DZA
Refrigerant	HFC	Recommended	Can be used
	HCFC	Can be used	Recommended
	CFC	Not Recommended	Recommended
Oil	Mineral or AB	Can be used	Recommended
	POE or PAG, pure	Recommended	Can be used
	POE or PAG, with additives	Recommended	Not Recommended

Liquid Capacity and Drying Capacity

Model	Liquid Capacity ⁽¹⁾ [kW]				Drying Capacity ⁽²⁾ [kg]					
	R134a	R410A	R407C	R404A /R507	R134a		R404A/R507		R407C/R410A	
					24°C	52°C	24°C	52°C	24°C	52°C
DQA 032/032S	8.1	8.8	8.4	6.3	4.7	4.4	5.2	4.9	4.65	4.3
DQA 032.5S	9.5	9.8	9.5	6.7						
DQA 033/033S	17.2	18.9	18.9	13.0						
DQA 034/034S	24.2	25.9	25.9	17.2						
DQA 052/052S	10.2	10.9	10.9	7.4	11.9	11.2	12.7	10.3	11.6	10
DQA 052.5S	10.9	11.9	11.6	8.1						
DQA 053/053S	23.8	24.5	24.2	16.8						
DQA 054S	25.2	25.9	25.6	17.9						
DQA 054	24.5	24.9	24.5	17.2						
DQA 055/055S	34.7	36.1	36.1	24.9						
DQA 052-2/052S-2	7.0	8.1	8.1	4.9	7.9	7.5	8.4	7.9	7.9	7.3
DQA 052.5S-2	9.1	9.1	9.1	7.0						
DQA 053-2/053S-2	17.9	18.9	18.9	14.0						
DQA 054-2/054S-2	24.9	27.0	27.0	20.0						
DQA 055-2/055S-2	34.0	37.1	37.1	30.8						
DQA 082/082S	10.9	11.9	11.6	7.7	13.3	12.3	13.8	13	12.5	11.3
DQA 082.5S	11.9	12.6	12.3	8.1						
DQA 083/083S	24.9	25.6	25.2	17.5						
DQA 084/084S	27.7	30.5	28.0	20.7						
DQA 085/085S	42.4	45.9	45.9	30.8						
DQA 082-2/082S-2	7.0	8.1	8.1	4.9	12.5	11.8	13.3	12.5	12.5	11.5
DQA 082.5S-2	9.1	10.9	10.9	8.1						
DQA 083-2/083S-2	18.9	21.4	21.4	14.4						
DQA 084-2/084S-2	25.9	29.1	29.1	20.0						
DQA 085-2/085S-2	43.1	45.9	45.9	31.2						
DQA 162/162S	10.9	11.2	10.9	7.7	25.6	24	27.9	25.4	23.1	21
DQA 162.5S	11.6	13.0	12.3	8.4						
DQA 163/163S	22.1	24.2	24.2	16.1						
DQA 164/164S	34.0	36.8	37.1	24.2						
DQA 165/165S	44.1	48.3	44.5	32.2						
DQA 166/166S	46.6	48.7	47.3	32.6						
DQA 167/167S	56.0	60.6	59.5	41.3						
DQA 303/303S	25.6	25.9	25.6	17.9	45.3	42	46.8	44.3	42.5	39
DQA 304/304S	30.1	32.6	31.9	21.7						
DQA 305S	50.8	55.0	53.9	36.8						
DQA 305	48.3	52.5	51.5	35						
DQA 306/306S	62.0	67.9	67.9	45.2						
DQA 307/307S	69.3	75.6	69.3	50.4						
DQA 309S	87.2	94.5	92.8	63.0						
DQA 413/413S	21.4	23.5	23.5	15.4	77.9	73.6	82.6	77	78.1	72.2
DQA 414S	37.5	40.6	39.9	27.3						
DQA 414	34.3	37.1	36.4	24.9						
DQA 415S	57.8	62.7	61.3	42.0						
DQA 415	54.6	59.2	58.1	39.6						
DQA 417S	71.1	77.0	76.0	51.5						
DQA 417	67.2	73.5	71.8	47.6						
DQA 419S	92.1	94.5	92.8	64.8						
DQA 416/416S	66.2	72.5	72.8	47.6						

Liquid Capacity and Drying Capacity (continued)

Model	Liquid Capacity ⁽¹⁾ [kW]				Drying Capacity ⁽²⁾ [kg]					
	R134a	R410A	R407C	R404A /R507	R134a		R404A/R507		R407C/R410A	
					24°C	52°C	24°C	52°C	24°C	52°C
DQA 604/604S	38.5	42.0	41.3	28.7	117	110	124	116	117	108
DQA 607/607S	73.5	80.5	80.2	54.6						
DQA 609S	101.5	109.6	109.6	82.3						
DQA 754S	39.9	45.9	43.8	31.9	160	151	201	108	160	148
DQA 755S	66.9	74.2	70.7	50.4						
DQA 756S	79.8	87.5	87.2	57.4						
DQA 757/757S	119.7	129.9	127.1	86.8						
DQA 759S	130.6	141.4	138.6	94.5						

⁽¹⁾ Given in accordance with ARI 710-2004 for $T_e = -15^\circ\text{C}$, $T_c = 30$, $\Delta P = 0.07$ bar.

⁽²⁾ Drying capacity is based on the following moisture content test standards before and after drying:

R134a: 1050-50 ppm W.

R404A, R507: 1020-50 ppm W.

R407C: 1020-50 ppm W.

R410A: 1050-50 ppm W.

In accordance with ARI 710-2004

Liquid Capacity and Drying Capacity (continued)

Model	Liquid Capacity ⁽¹⁾ [kW]				Drying Capacity ⁽²⁾ [kg]					
	R134a	R410A	R407C	R404A/R507	R134a		R404A/R507		R407C/R410A	
					24°C	52°C	24°C	52°C	24°C	52°C
DZA 032/032S	8.1	8.8	8.4	6.3	3.76	3.52	4.16	3.92	3.72	3.44
DZA 032.5S	9.5	9.8	9.5	6.7						
DZA 033/033S	17.2	18.9	18.9	13.0						
DZA 034S	24.2	25.9	25.9	17.2						
DZA 034	24.2	24.9	24.5	17.2						
DZA 052/052S	10.2	10.9	10.9	7.4	9.52	8.96	10.16	8.24	9.28	8
DZA 052.5S	10.9	11.9	11.6	8.1						
DZA 053/053S	23.8	24.5	24.2	16.8						
DZA 054S	25.2	25.9	25.6	17.9						
DZA 054	24.5	24.9	24.5	17.2						
DZA 055/055S	34.7	36.1	36.1	24.9	6.32	6	6.72	6.32	6.32	5.84
DZA 052-2/052S-2	7.0	8.1	8.1	4.9						
DZA 052.5S-2	9.1	9.1	9.1	7.0						
DZA 053-2/053S-2	17.9	18.9	18.9	14.0						
DZA 054-2/054S-2	24.9	27.0	27.0	20.0						
DZA 055-2/055S-2	34.0	37.1	37.1	30.8	10.64	9.84	11.04	10.4	10	9.04
DZA 082/082S	10.9	11.9	11.6	7.7						
DZA 082.5S	11.9	12.6	12.3	8.1						
DZA 083/083S	24.9	25.6	25.2	17.5						
DZA 084/084S	27.7	30.5	28.0	20.7						
DZA 085/085S	42.4	45.9	45.9	30.8	10	9.44	10.64	10	10	9.2
DZA 082-2/082S-2	7.0	8.1	8.1	4.9						
DZA 082.5S-2	9.1	10.9	10.9	8.1						
DZA 083-2/083S-2	18.9	21.4	21.4	14.4						
DZA 084-2/084S-2	25.9	29.1	29.1	20.0						
DZA 085-2/085S-2	43.1	45.9	45.9	31.2	20.48	19.2	22.32	20.32	18.48	16.8
DZA 162/162S	10.9	11.2	10.9	7.7						
DZA 162.5S	11.6	13.0	12.3	8.4						
DZA 163/163S	22.1	24.2	24.2	16.1						
DZA 164/164S	34.0	36.8	37.1	24.2						
DZA 165/165S	44.1	48.3	44.5	32.2	36.24	33.6	37.44	35.44	34	31.2
DZA 166/166S	46.6	48.7	47.3	32.6						
DZA 167/167S	56.0	60.6	59.5	41.3						
DZA 303/303S	25.6	25.9	25.6	17.9						
DZA 304/304S	30.1	32.6	31.9	21.7						
DZA 305/305S	50.8	55.0	53.9	36.8	62.32	58.88	66.08	61.6	62.48	57.76
DZA 306/306S	62.0	67.9	67.9	45.2						
DZA 307/307S	69.3	75.6	69.3	50.4						
DZA 309S	87.2	94.5	92.8	63.0						
DZA 413/413S	21.4	23.5	23.5	15.4						
DZA 414S	37.5	40.6	39.9	27.3	62.32	58.88	66.08	61.6	62.48	57.76
DZA 414	34.3	37.1	36.4	24.9						
DZA 415S	57.8	62.7	61.3	42.0						
DZA 415	54.6	59.2	58.1	39.6						
DZA 417S	71.1	77.0	76.0	51.5						
DZA 417	67.2	73.5	71.8	47.6						
DZA 419S	92.1	94.5	92.8	64.8						
DZA 416/416S	66.2	72.5	72.8	47.6						

Liquid Capacity and Drying Capacity (continued)

Model	Liquid Capacity ⁽¹⁾ [kW]				Drying Capacity ⁽²⁾ [kg]					
	R134a	R410A	R407C	R404A/R507	R134a		R404A/R507		R407C/R410A	
					24°C	52°C	24°C	52°C	24°C	52°C
DZA 604/604S	38.5	42.0	41.3	28.7	93.6	88	99.2	92.8	93.6	86.4
DZA 607/607S	73.5	80.5	80.2	54.6						
DZA 609S	101.5	109.6	109.6	82.3						
DZA 754S	39.9	45.9	43.8	31.9	128	120.8	160.8	86.4	128	118.4
DZA 755S	66.9	74.2	70.7	50.4						
DZA 756S	79.8	87.5	87.2	57.4						
DZA 757/757S	119.7	129.9	127.1	86.8						
DZA 759S	130.6	141.4	138.6	94.5						

⁽¹⁾ Given in accordance with ARI 710-2004 for Te=-15°C, Tc=30°C, ΔP=0.07 bar.

⁽²⁾ Drying capacity is based on the following moisture content test standards before and after drying:

R134a: 1050-50 ppm W.

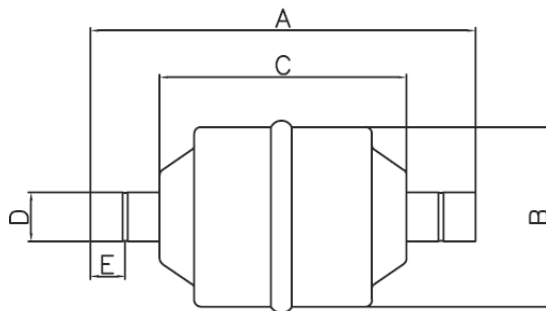
R404A, R507: 1020-50 ppm W.

R407C: 1020-50 ppm W.

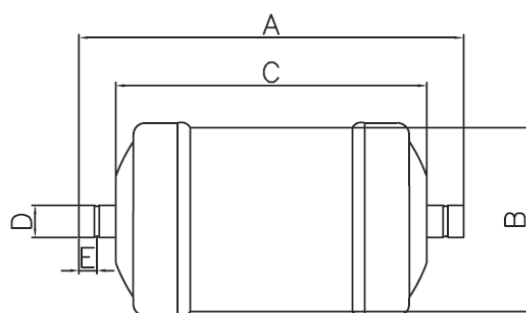
R410A: 1050-50 ppm W.

In accordance with ARI 710-2004

Ordering and Dimensions



DQA Series		DZA Series		Connection		Dimension		
Model	Code No.	Model	Code No.	[In.]		[mm]		
				ODF D	SAE D	A	B	C
DQA 032S	360001000007	DZA 032S	360001000018	1/4	-	98	42	66
DQA 032	360001000008	DZA 032	360001000019	-	1/4	110		
DQA 032.5S	360001000015	DZA 032.5S	360001000020	5/16	-	102		
DQA 033S	360001000011	DZA 033S	360001000021	3/8	-	104		
DQA 033	360001000009	DZA 033	360001000022	-	3/8	122		
DQA 034S	360001000016	DZA 034S	360001000023	1/2	-	108		
DQA 034	360001000017	DZA034	360001000024	-	1/2	130		
DQA 052S-2	360002000039	DZA 052S-2	360002000059	1/4	-	107	54	75
DQA 052-2	360002000040	DZA 052-2	360002000060	-	1/4	119		
DQA 052.5S-2	360002000041	DZA 052.5S-2	360002000061	5/16	-	111		
DQA 053-2	360002000043	DZA 053-2	360002000063	-	3/8	131		
DQA 053S-2	360002000042	DZA 053S-2	360002000062	3/8	-	113		
DQA 054-2	360002000045	DZQ 054-2	360002000065	-	1/2	138		
DQA 054S-2	360002000044	DZQ 054S-2	360002000064	1/2	-	117		
DQA 055-2	360002000047	DZQ 055-2	360002000067	-	5/8	149		
DQA 055S-2	360002000046	DZQ 055S-2	360002000066	5/8	-	121		
DQA 082S-2	360003000039	DZA 082S-2	360003000071	1/4	-	132	54	101
DQA 082-2	360003000040	DZA 082-2	360003000072	-	1/4	145		
DQA 082.5S-2	360003000041	DZA 082.5S-2	360003000073	5/16	-	137		
DQA 083S-2	360003000042	DZA 083S-2	360003000074	3/8	-	139		
DQA 083-2	360003000043	DZA 083-2	360003000075	-	3/8	157		
DQA 084S-2	360003000044	DZA 084S-2	360003000076	1/2	-	143		
DQA 084-2	360003000045	DZA 084-2	360003000077	-	1/2	165		
DQA 085S-2	360003000046	DZA 085S-2	360003000078	5/8	-	147		
DQA 085-2	360003000047	DZA 085-2	360003000079	-	5/8	175		



DQA Series		DZA Series		Connection		Dimension		
Model	Code No.	Model	Code No.	[In.]		[mm]		
				ODF D	SAE D	A	B	C
DQA 052S	360002000007	DZA 052S	360002000050	1/4	-	109	63.5	77
DQA 052	360002000011	DZA 052	360002000051	-	1/4	121		
DQA 052.5S	360002000034	DZA 052.5S	360002000052	5/16	-	113		
DQA 053S	360002000008	DZA 053S	360002000053	3/8	-	115		
DQA 053	360002000012	DZA 053	360002000054	-	3/8	132		
DQA 054S	360002000035	DZA 054S	360002000055	1/2	-	119		
DQA 054	360002000036	DZA 054	360002000056	-	1/2	141		
DQA 055S	360002000037	DZA 055S	360002000057	5/8	-	123		
DQA055	360002000038	DZA 055	360002000058	-	5/8	151		
DQA 082S	360003000013	DZA 082S	360003000061	1/4	-	129	63.5	97
DQA 082	360003000017	DZA 082	360003000063	-	1/4	141		
DQA 082.5S	360003000037	DZA 082.5S	360003000064	5/16	-	133		
DQA 083S	360003000014	DZA 083S	360003000065	3/8	-	135		
DQA 083	360003000018	DZA 083	360003000066	-	3/8	153		
DQA 084S	360003000015	DZA 084S	360003000067	1/2	-	139		
DQA 084	360003000019	DZA 084	360003000068	-	1/2	161		
DQA 085S	360003000016	DZA 085S	360003000069	5/8	-	143		
DQA 085	360003000038	DZA 085	360003000070	-	5/8	171		
DQA 162S	360005000013	DZA 162S	360005000058	1/4	-	141	76	110
DQA 162	360005000035	DZA 162	360005000059	-	1/4	154		
DQA 162.5S	360005000043	DZA 162.5S	360005000060	5/16	-	146		
DQA 163S	360005000014	DZA 163S	360005000063	3/8	-	148		
DQA 163	360005000022	DZA 163	360005000064	-	3/8	166		
DQA 164S	360005000015	DZA 164S	360005000065	1/2	-	152		
DQA 164	360005000023	DZA 164	360005000066	-	1/2	174		
DQA 165S	360005000016	DZA 165S	360005000067	5/8	-	156		
DQA 165	360005000024	DZA 165	360005000068	-	5/8	184		
DQA 166S	360005000044	DZA 166S	360005000069	3/4	-	170		
DQA 166	360005000045	DZA 166	360005000070	-	3/4	186		
DQA 167S	360005000046	DZA 167S	360005000071	7/8	-	172		
DQA 167	360005000047	DZA 167	360005000072	-	7/8	198		

(continued)

DQA Series		DZA Series		Connection		Dimension		
Model	Code No.	Model	Code No.	Model		Code No.		
				ODF	SAE	A	B	C
DQA 303S	360007000012	DZA 303S	360007000037	3/8	-	229	76	191
DQA 303	360007000032	DZA 303	360007000038	-	3/8	247		
DQA 304S	360007000026	DZA 304S	360007000039	1/2	-	233		
DQA 304	360007000027	DZA 304	360007000040	-	1/2	255		
DQA 305S	360007000009	DZA 305S	360007000041	5/8	-	237		
DQA 305	360007000028	DZA 305	360007000042	-	5/8	265		
DQA 306S	360007000006	DZA 306S	360007000043	3/4	-	251		
DQA 306	360007000011	DZA 306	360007000044	-	3/4	267		
DQA 307S	360007000010	DZA 307S	360007000045	7/8	-	253		
DQA 307	360007000029	DZA 307	360007000046	-	7/8	279		
DQA 309S	360107000013	DZA 309S	360007000047	9/8	-	257		
DQA 413S	360008000008	DZA 413S	360008000025	3/8	-	233	89	195
DQA 413	360008000009	DZA 413	360008000026	-	3/8	251		
DQA 414S	360008000010	DZA 414S	360008000027	1/2	-	237		
DQA 414	360008000011	DZA 414	360008000028	-	1/2	259		
DQA 415S	360008000001	DZA 415S	360008000029	5/8	-	241		
DQA 415	360008000002	DZA 415	360008000030	-	5/8	269		
DQA 416S	360008000023	DZA 416S	360008000039	3/4	-	247		
DQA 416	360008000024	DZA 416	360008000040	-	3/4	263		
DQA 417S	360008000003	DZA 417S	360008000031	7/8	-	257		
DQA 417	360008000012	DZA 417	360008000032	-	7/8	283		
DQA 419S	360008000004	DZA 419S	360008000033	9/8	-	261		
DQA 604S	360010000006	DZA 604S	360010000010	1/2	-	379	76	337
DQA 604	360010000007	DZA 604	360010000011	-	1/2	401		
DQA 607S	360010000004	DZA 607S	360010000012	7/8	-	399		
DQA 607	360010000008	DZA 607	360010000013	-	7/8	425		
DQA 609S	360010000003	DZA 609S	360010000014	9/8	-	403		
DQA 754S	360011000011	DZA 754S	360011000014	1/2	-	379		
DQA 755S	360011000012	DZA 755S	360011000015	5/8	-	383		
DQA 756S	360011000013	DZA 756SS	360011000016	3/4	-	397	89	337
DQA 757S	360011000009	DZA 757S	360011000017	7/8	-	399		
DQA 757	360011000010	DZA 757	360011000018	-	7/8	425		
DQA 759S	360011000008	DZA 759S	360011000019	9/8	-	403		

Filter Drier

DQB/DZB Series



Application

DQB/DZB series bi-flow filter driers are usually used in liquid line of Heat Pump system to protect from moisture, acids, and foreign solid particles. DQB series adopt a core of 100% molecular sieve, while DZB series have a core of 80% molecular sieve and 20% activated alumina.

Features

- Built-in check valve provides accurate bilateral control;
- Unrestricted installing position.

Approvals

UL, Declaration according to PED

Nomenclature

Filter Drier	D	-
Solid Core	Q	100% 3A molecular sieve
	Z	80% 3A molecular sieve + 20% active aluminum
Application	B	Bi-flow
Size(volume)	05	5 in. ³
	08	8 in. ³
	10	10 in. ³
	16	16 in. ³
	30	30 in. ³
Connection (filter connection in 1/8 of an inch increments)	2	1/4 in.
	2.5	5/16 in.
	3	3/8 in.
	4	1/2 in.
	5	5/8 in.
	6	3/4 in.
	7	7/8 in.
	9	1-1/8 in.
Connection Type	(blank)	flare connection
	S	solder connection
Structure	(blank)	-
	-2	Second generation

Technical Data

Applicable Refrigerants: R134a, R407C, R410A, and R404A

Max. Operating Pressure: 4.6 MPa

Medium Temperature: -40°C ~ +80°C

Ambient Temperature: -40°C ~ +55°C

Applicable Relative Humidity: ≤95%

Selection

Model		DQB	DZB
Refrigerant	HFC	Recommended	Can be used
	HCFC	Can be used	Recommended
	CFC	Not Recommended	Recommended
Oil	Mineral or AB	Can be used	Recommended
	POE or PAG, pure	Recommended	Can be used
	POE or PAG, with additives	Recommended	Not Recommended

Liquid Capacity and Drying Capacity

Model	Liquid Capacity ⁽¹⁾ [kW]				Drying Capacity ⁽²⁾ [kg]					
	R134a	R410A	R407C	R404A /R507	R134a		R404A/R507		R407C/R410A	
					24°C	52°C	24°C	52°C	24°C	52°C
DQB 052/052S	7.7	7.7	7.7	5.3	4.2	4	4.1	3.8	4.1	3.7
DQB 053/053S	16.5	16.8	16.5	11.6						
DQB 054/054S	24.9	25.2	24.9	17.5						
DQB 082/082S	7.7	7.7	7.7	5.3	9.1	8.6	9.4	8.9	9.1	8.4
DQB 082.5S	15.8	16.1	15.8	10.9						
DQB 083/083S	17.9	17.9	17.5	11.9						
DQB 084/084S	23.5	23.5	23.1	15.4						
DQB 085/085S	28.4	28.4	27.7	18.2						
DQB 082-2/082S-2	5.3	6.0	6.0	3.9	8.7	8	8.3	7.6	8.2	7.3
DQB 082.5S-2	6.7	7.0	7.0	4.9						
DQB 083-2/083S-2	7.4	8.4	8.4	5.3						
DQB 084-2/084S-2	8.4	9.5	9.5	6.0						
DQB 085-2/085S-2	9.5	10.9	10.9	7.4						

⁽¹⁾ Given in accordance with ARI 710-2004 for T_e=-15°C, T_c=30°C, ΔP=0.07 bar.

⁽²⁾ Drying capacity is based on following moisture content test standards before and after drying: R134a: 1050-50 ppm W.

R404A, R507: 1020-50 ppm W.

R407C: 1020-50 ppm W.

R410A: 1050-50 ppm W.

In accordance with ARI 710-2004

Liquid Capacity and Drying Capacity (continued)

Model	Liquid Capacity ⁽¹⁾ [kW]				Drying Capacity ⁽²⁾ [kg]					
	R134a	R410A	R407C	R404A /R507	R134a		R404A/R507		R407C/R410A	
					24°C	52°C	24°C	52°C	24°C	52°C
DZB 052/052S	7.7	7.7	7.7	5.3	3.36	3.2	3.28	3.04	3.28	2.96
DZB 053/053S	16.5	16.8	16.5	11.6						
DZB 054/054S	24.9	25.2	24.9	17.5						
DZB 082/082S	7.7	7.7	7.7	5.3	7.28	6.88	7.52	7.12	7.28	6.72
DZB 082.5S	15.8	16.1	15.8	10.9						
DZB 083/083S	17.9	17.9	17.5	11.9						
DZB 084/084S	23.5	23.5	23.1	15.4						
DZB 085/085S	28.4	28.4	27.7	18.2						
DZB 082-2/082S-2	5.3	6.0	6.0	3.9	6.96	6.4	6.64	6.08	6.56	5.84
DZB 082.5S-2	6.7	7.0	7.0	4.9						
DZB 083-2/083S-2	7.4	8.4	8.4	5.3						
DZB 084-2/084S-2	8.4	9.5	9.5	6.0						
DZB 085-2/085S-2	9.5	10.9	10.9	7.4						

⁽¹⁾ Given in accordance with ARI 710-2004 for T_e=-15°C, T_c=30°C, ΔP=0.07 bar.

⁽²⁾ Drying capacity is based on the following moisture content test standards before and after drying: R134a: 1050-50 ppm W.

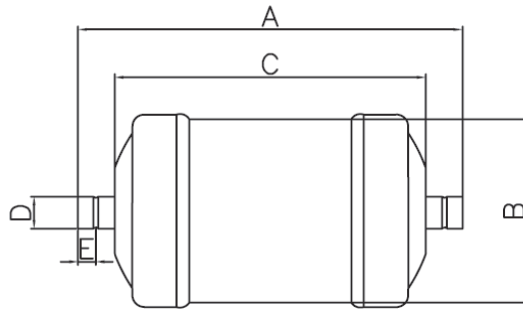
R404A, R507: 1020-50 ppm W.

R407C: 1020-50 ppm W.

R410A: 1050-50 ppm W.

In accordance with ARI 710-2004

Ordering and Dimensions



DQB Series		DZB Series		Connection		Dimension		
Model	Code No.	Model	Code No.	[In.]		[mm]		
				ODF D	SAE D	A	B	C
DQB 052S	360002000013	DZB 052S	360002000068	1/4	-	109	63.5	77
DQB 052	360002000014	DZB 052	360002000069	-	1/4	121		
DQB 053S	360002000006	DZB 053S	360002000070	3/8	-	115		
DQB 053	360002000016	DZB 053	360002000071	-	3/8	133		
DQB 054S	360002000048	DZB 054S	360002000072	1/2	-	119		
DQB 054	360002000049	DZB 054	360002000073	-	1/2	141		
DQB 082S	360003000058	DZB 082S	360003000090	1/4	-	129	63.5	97
DQB 082	360003000003	DZB 082S	360003000091	-	1/4	141		
DQB 082.5S	360003000059	DZB 082.5S	360003000092	5/16	-	133		
DQB 083S	360003000020	DZB 083S	360003000093	3/8	-	135		
DQB 083	360003000021	DZB 083	360003000094	-	3/8	153		
DQB 084S	360003000022	DZB 084S	360003000095	1/2	-	139		
DQB 084	360003000023	DZB 084	360003000096	-	1/2	161		
DQB 085S	360003000024	DZB 085S	360003000097	5/8	-	143		
DQB 085	360003000025	DZB 085	360003000098	-	5/8	171		
DQB 082S-2	360003000049	DZB 082S-2	360003000081	1/4	-	135	54	103
DQB 082-2	360003000050	DZB 082-2	360003000082	-	1/4	147		
DQB 082.5S-2	360003000057	DZB 082.5S-2	360003000083	5/16	-	139		
DQB 083S-2	360003000051	DZB 083S-2	360003000084	3/8	-	141		
DQB 083-2	360003000052	DZB 083-2	360003000085	-	3/8	159		
DQB 084S-2	360003000053	DZB 084S-2	360003000086	1/2	-	145		
DQB 084-2	360003000054	DZB 084-2	360003000087	-	1/2	167		
DQB 085S-2	360003000055	DZB 085S-2	360003000088	5/8	-	149		
DQB 085-2	360003000056	DZB 085-2	360003000089	-	5/8	177		

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

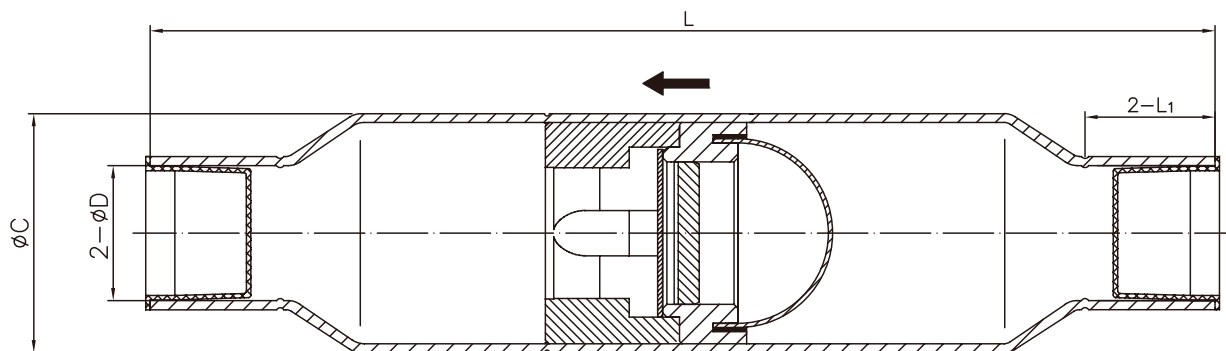
UL, Declaration according to PED

Technical Data

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

Medium Temperature: -30°C~+120°C

Ordering and Dimensions



Model	Code No.	Connection	Dimensions			Max. Operating Pressure [MPa]	Pressure Drop Across Valve ΔP [MPa]	K _v [m³/h]
		D [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

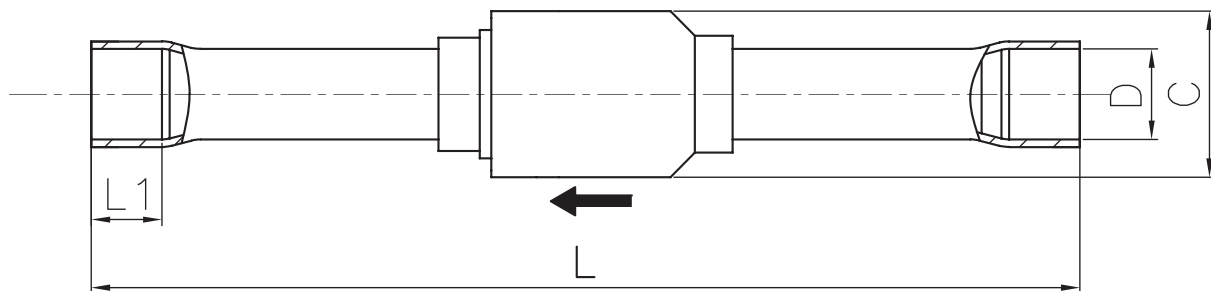
UL, Declaration according to PED

Technical Data

Applicable Refrigerant: R134a, R407C, R410A, R404A, R290, and R32;

Max. Operating Pressure: 4.9 MPa

Medium Temperature: -40°C~+150°C



Model	Code No.	Dimensions				K _v	Min OPD
		C	D	L	L ₁		
		[mm]	[mm]	[mm]	[mm]		
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: m³/h; Density: 1000 kg/m³.

Charge Valve

FJT Series

Application

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

Features

- Combination of soft seal and hard seal ensures airtightness

Approvals

Declaration according to PED

Technical Data

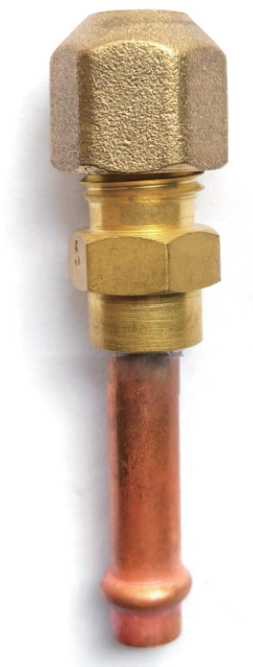
Applicable Refrigerant: R134a, R407C, R410A, R32, and R404A, R290

Applicable Relative Humidity: $\leq 95\%$

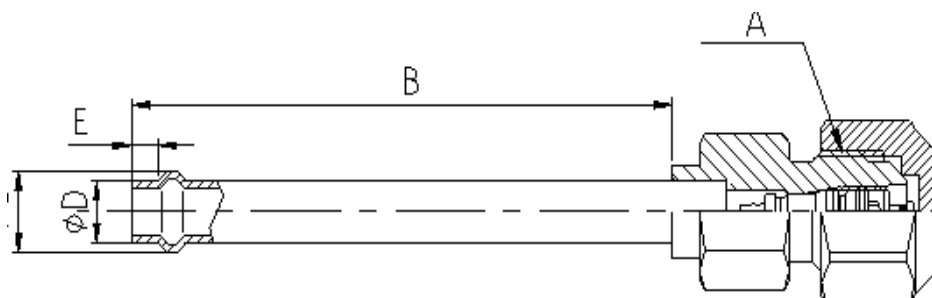
Medium Temperature: $-30^{\circ}\text{C} \sim +120^{\circ}\text{C}$

Ambient Temperature: $-30^{\circ}\text{C} \sim +70^{\circ}\text{C}$

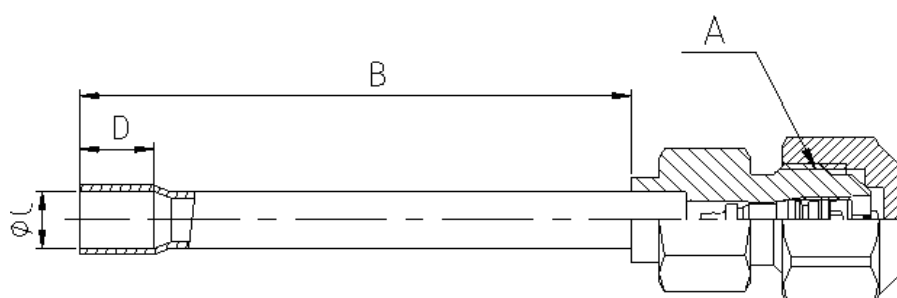
Max. Operating Pressure: 4.5 MPa



Ordering and Dimensions



Model	Code No.	Connections			Dimensions			Applicable Refrigerant
		Solder ODF ϕD		Flare A	B	ϕC	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
FJT-8883-DG4	280004888300	6.35	1/4	7/16-20 UNF	60	8.5	3	R407C, R134a, R404A



Model	Code No.	Connections			Dimensions		Applicable Refrigerant
		Solder ODF ϕC		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
FJT-8886-DG4	280004888600	6.5	1/4	7/16-20 UNF	60	8	R407C, R134a, R404A

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

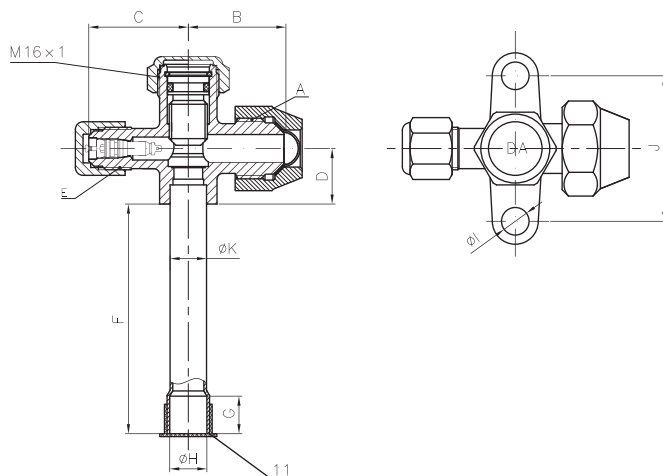
Applicable Relative Humidity: ≤95%

Medium Temperature: -30°C~+120°C

Ambient Temperature: -30°C~+70°C

Max. Operating Pressure: 4.5 MPa

Ordering and Dimensions

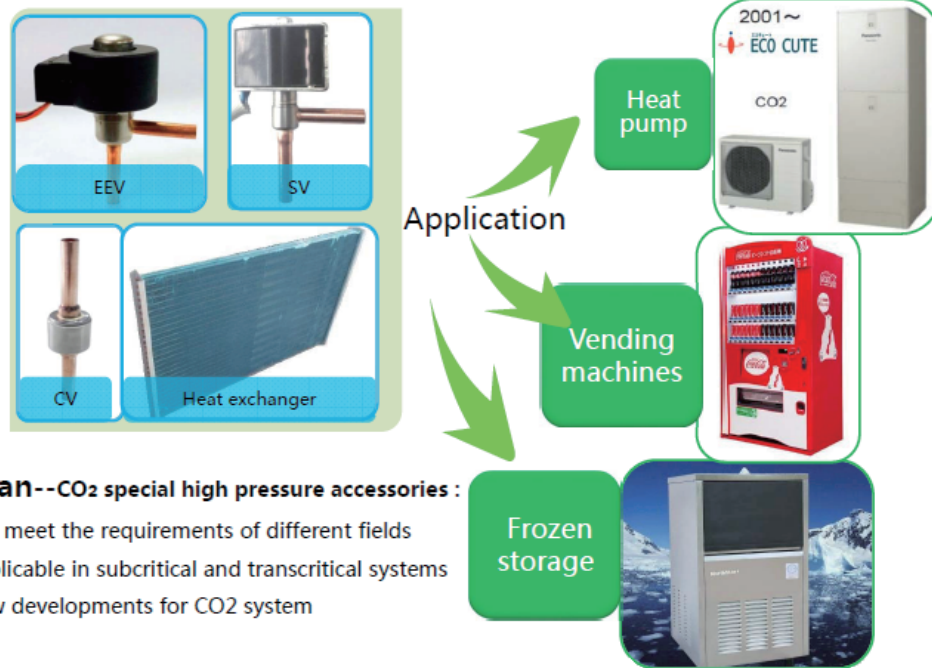


Model	Code No.	Port [mm]	A [mm]	B [mm]	C [mm]	D [mm]	E Flare[in.]	F [mm]	G [mm]	Applicable Refrigerant
FJ-8888-DG4	280004888800	4.8	7/16-20UNF	24	-	14	1/2-20UNF	60	8	R410A R32 R290
FJ-8888-DG8	280008888800	7	5/8-18UNF	25.5	28	14.5		60	10	
FJ-8888-DG10	280010888800	10	3/4-16UNF	30	28	16		60	10	
FJ-8888-DG13	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	R407C R134a R404A
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	38.5ww	30	22.5		60	15	

(continued)

Model	Code No.	H [mm]	I [mm]	J [mm]	K [mm]	Capacity	Applicable Refrigerant
						[kW]	
FJ-8888-DG4	280004888800	6.5	7.2	38	6.35	1.6~4.1	R410A R32 R290
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	R407C R134a R404A
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	

CO₂ (R744) Products



Your request
is our highest
goal !



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

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

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

CO₂ Electronic Expansion Valve

DPF(E) Series

Application

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



Features

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

Technical Data

Applicable Medium: R744 (CO₂) + PAG oil

Relative Humidity: ≤95%

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

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

Max. Operating Pressure: 14.0 MPa

Internal Leakage: ≤ 600mL/min (except EEV without shut off function)

Uni-directional flow

Life Cycle: ≥ 50,000

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 $T_c=22^\circ\text{C}$; 2. Gas cooler outlet pressure $P_c=10\text{MPa}$;

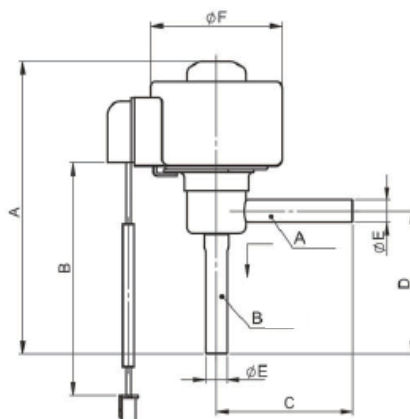
3. Evaporating Temperature $T_e=6^\circ\text{C}$; 4. Superheating $\Delta T_{sh}=0\text{K}$

The above specifications can be 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°C)
Current	260mA/phase (20°C)
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.

CO₂ 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 CO₂ systems, such as HP water heater, freezing and refrigerating systems.



Features

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

Technical Data

Applicable Medium: R744 (CO₂) + PAG oil

Relative Humidity: ≤95%

Medium Temperature: -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

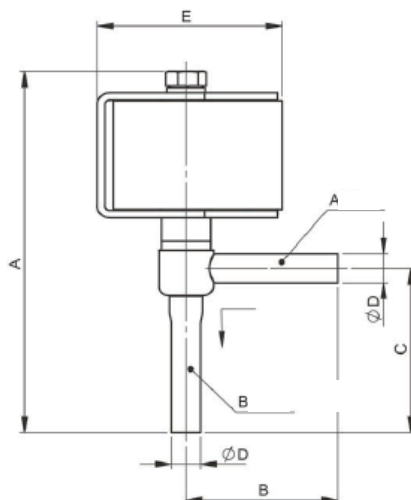
Specification

Model	Orifice Φ [mm]	Min. OPD [MPa]	MOPD [MPa]	Max. Operating Pressure [MPa]	Kv [m³/h]	Connection [mm]
RDFA1.0S	1.0	0	10	14	0.024	6.35
RDFA1.2S	1.2				0.033	

Coil

Model	Nominal Voltage [V]	Voltage range	Frequency [Hz]	Power [W]	Insulation Class	Protection Class	Connection Type
CDFX-101	DC 12	90% ~ 150%	-	9W	B	IP67	wire
CDFX-102	DC 24						
FDFX-046	AC 100	85% ~ 110%	50/60	7/5W			
FDFX-047	AC 110						
FDFX-048	AC 200						
FDFX-049	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.

CO₂ 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 (CO₂) + 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

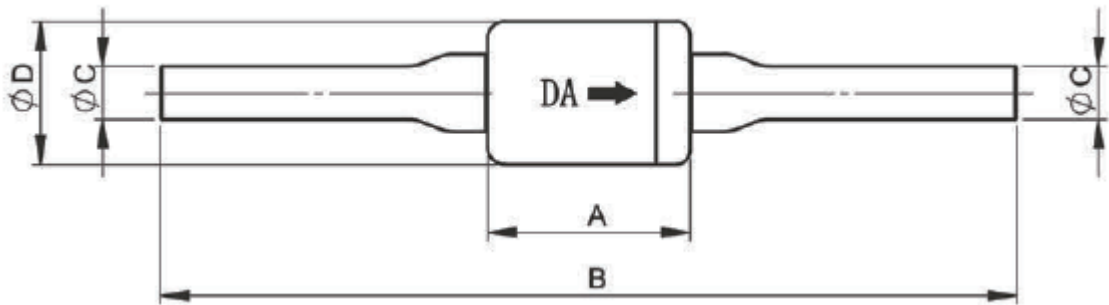
Straightway

Life Cycle: ≥ 50,000

Specification

Model	Orifice Φ [mm]	Min. OPD [MPa]	Max. Operating Pressure [MPa]	MOPD [MPa]	Burst Pres- sure [MPa]	Kv [m ³ /h]	Connection [mm]
CV(B)-6S	4.0	0.04	14	10	42	0.45	6.35
CV(B)-8S	5.0					0.55	7.94
CV(B)-10S	6.0					0.78	9.52

Dimensions



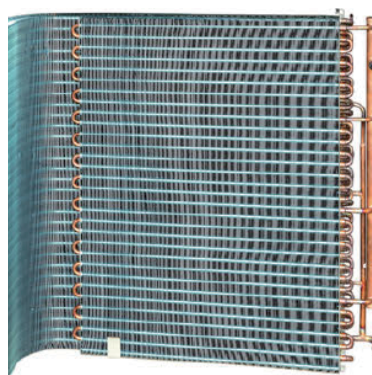
Model	A	B	C	D
	[mm]	[mm]	[mm]	[mm]
CV(B)-6S	25	105	6.35	17.3
CV(B)-8S			9.94	
CV(B)-10S			9.52	18.4

Note: Valve dimensions could be customized.

CO₂ Tube Fin Heat Exchanger

Application

Newly developed air-cooled fin-tube heat exchanger is specially designed for application in refrigeration and heat pump systems of CO₂, which could work either in heating or cooling mode. Inner grooved tubes of diameter 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 CO₂ 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 (CO₂) + PAG oil

Relative Humidity: ≤95%

Medium Temperature: -30°C~+120°C

Ambient Temperature: -30°C~+70°C

Max. Operating Pressure: micro-grooved copper tubes≤9.0 MPa & smooth copper tubes≤14.0 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.

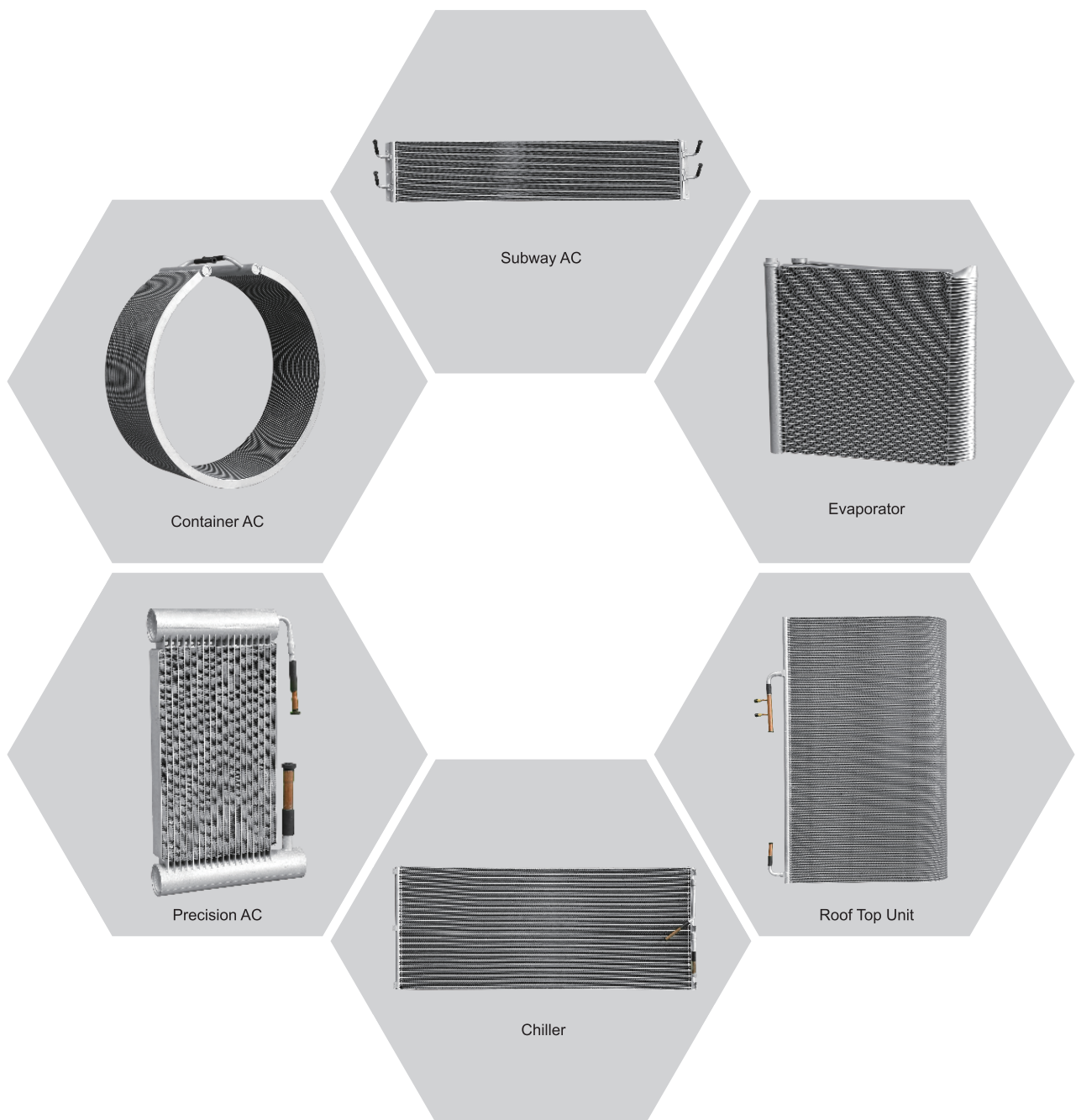
Tube-Fin Heat Exchanger



Mould Information

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, Flatw	1.2~3.0
6	Φ 7	19.05	16.5	Corrugated, Flat, Lanced, 60° Inclined Cut	1.3~4.0
7	Φ 7	25	12.5	Corrugated, Flat, Louver, 45° Inclined Cut	1.2~3.5
8	Φ 7.94	22	19.05	Sine Corrugated, Corrugated, Flat, Louver	1.2~4.2
9	Φ 7.94	25.4	12	Corrugated, Flat ,43° Inclined Cut	1.5~3.8
10	Φ 7.94	25.4	15.88	Sine Corrugated, Corrugated, Louver, Lanced, Flat	1.2~4.0
11	Φ 9.52	25	12.5	Corrugated, Flat, Louver	1.5~3.0
12	Φ 9.52	25	21.65	Corrugated, Louver, Flat	1.2~3.5
13	Φ 9.52	25	21.65	Sine Corrugated, Corrugated, Flat, 60° Inclined Cut	3.0~5.8
14	Φ 9.52	25	25	Louver, Corrugated, Flat	1.5~4.5
15	Φ 9.52	25.4	15.88	Sine Corrugated, Corrugated, Flat, Louver	1.2~4.0
16	Φ 9.52	25.4	22	Corrugated, Louver, Flat	1.2~2.5
17	Φ 9.52	25.4	22	Corrugated, Louver, Flat	1.2~3.0
18	Φ 9.52	25.4	22	Sine Corrugated, Corrugated, Flat, 60° Inclined Cut	3.0~5.8
19	Φ 9.52	25.4	22	Corrugated, Flat (could be semicircle at edge)	3.0~6.5
20	Φ 9.52	31.75	27.5	Corrugated, Flat (could be semicircle at 3rd and 5th row)	3.5~6.5
21	Φ 9.52	31.75	27.5	Louver, Sine Corrugated, Corrugated, Flat	1.2~4.2
22	Φ 9.52	30	26	Louver, Sine Corrugated, Corrugated, Flat	1.2~4.5
23	Φ 12	30	26	Louver, Sine Corrugated, Corrugated, Flat	1.2~4.5
24	Φ 12.7	31.75	27.5	Sine Corrugated, Corrugated, Flat	2.2~4.5
25	Φ 12.7	31.75	27.5	Sine Corrugated, Corrugated, Flat	5.0~8.3
26	Φ 12.7	37.5	32.45	Corrugated, Louver, Flat	1.3~4.5
27	Φ 12.7	38	33	Sine Corrugated	4.5~9.0
28	Φ 15.88	38	33	Corrugated, Flat	2.0~4.0
29	Φ 15.88	38	33	Sine Corrugated, Corrugated, Flat	4.5~9.0
30	Φ 15.88	52	45	Sine Corrugated	4.5~9.0

Micro-Channel Heat Exchanger



Mould Information

Header	Tube	Fin	Pitch [mm]
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
20×1.2	16×1.3	5.2	1.1, 1.2, 1.3
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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