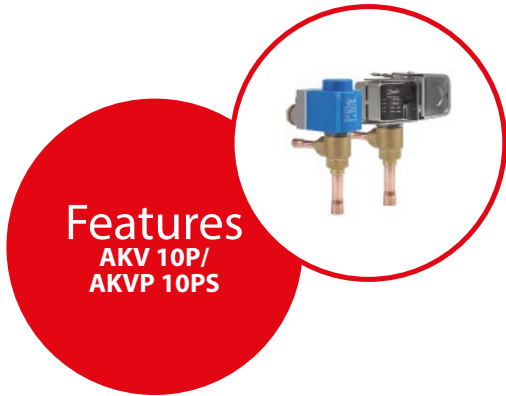


# AKV 10P / AKV 10PS, Electric expansion valves

AKV 10P and AKV10PS are electric operated expansion valves designed for refrigerating plants. The AKV 10P and AKV 10PS valves are normally controlled by a controller from Danfoss range of ADAP- KOOL® controllers, that ensures a precise liquid injection into evaporators.

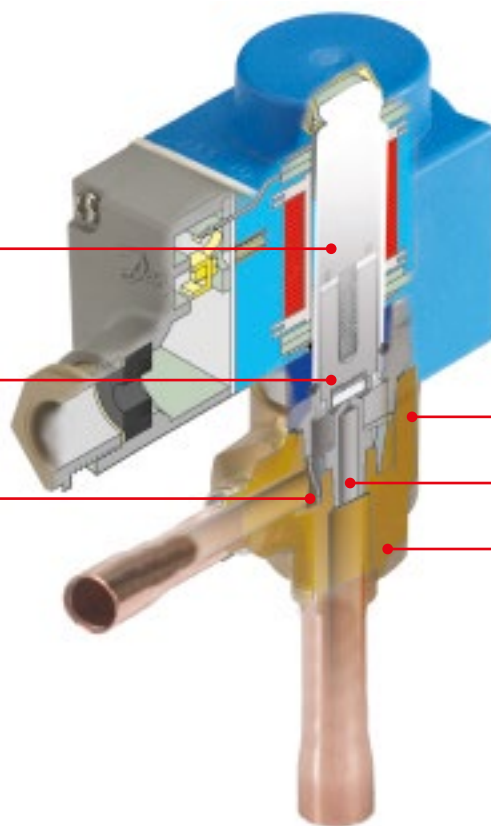
AKV 10P and AKV10PS valves are fully serviceable valves and are supplied as a parts programme with separate valve body and coil (with terminal box, cable or DIN plug).



Normally closed  
Solenoid tight shut-off valve

Superior valve technology  
that provides soft pulse  
operation

Fully serviceable valve



Internal and external  
corrosion resistant

Replaceable filter  
and orifice assembly

Both expansion valve  
and solenoid valve

## Facts

### Applications:

- Traditional refrigeration
- Cold rooms
- Water chillers
- Applicable to R744, R22, R23, R134a, R404A, R407A, R407C, R407F, R410A, R422B, R422D, R448A, R449A, R449B, R450A, R452A, R507, R513A

For a fully updated list of approved refrigerants, visit [www.products.danfoss.com](http://www.products.danfoss.com) and search for individual code numbers, where refrigerants are listed as part of product specifications.

- Precise control of liquid injection
- The AKV 10P/10PS valves cover a capacity range from 0.2 – 12.5 kW / 0.06 – 3.55 TR (404A / R507) and are divided into 8 capacity ranges
- Supports variety of refrigerants
- Solenoid tight shut-off
- Fully serviceable valve
- Superior valve technology that provides soft pulse operation

- Approvals: REACH, UL, LLC CDC EURO TYSK, EAC
- The AKV 10P/10PS valves are supplied as a parts programme, as follows:
  - separate valve incl. exchangeable orifice
  - separate coil
- The valve requires no adjustment
- Manufactured according to ISO/TS16949

## Technical data and ordering

### AKV 10P / AKV 10PS

#### Direct operated Valve

Valve type	AKV 10P0 to AKV 10P7
Working principle	PWM (Pulse-width modulation)
Recommended period of cycle time	6 Seconds
Regulation range (Capacity range)	10 – 100%
Connection type	Solder
Evaporating temperature	-60 – 60 °C / -76 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 122 °F
MOPD, AKV 10P0 to AKV 10P6	35 bar / 508 psig
MOPD, AKV 10P7	18 bar / 261 psi
Min. OPD, AKV 10P0 to AKV 10P7	0 bar / 0 psi
Filter, replaceable	Internal 100 µm
Max. working pressure	90 barg / 1305 psig
MAP (Max. Abnormal Pressure)	1305 psig
COT (Continuous Operation Temperature)	140 °F

Note: It is recommended to selected Servo operated AKV 10PS valves for those application where higher MOPD (with low coil power) and high dampening is required.

#### Servo operated Valve

Valve type	AKV 10PS4 to AKV 10PS7
Working principle	PWM (Pulse-width modulation)
Recommended period of cycle time	6 Seconds
Regulation range (Capacity range)	10 – 100%
Connection type	Solder
Evaporating temperature	-60 – 60 °C / -76 – 140 °F
Ambient temperature	-50 – 50 °C / -58 – 122 °F
MOPD	35 bar / 508 psig
Min. OPD, AKV 10PS4 to AKV 10PS7	0.1 bar / 1.45 psi
Filter, replaceable	Internal 53 µm
Max. working pressure	90 barg / 1305 psig
MAP (Max. Abnormal Pressure)	1305 psig
COT (Continuous Operation Temperature)	140 °F
Recommended Danfoss Filter	ELIMINATOR® Hermetic filter drier, type DML / DMSC

Note: It is recommended to selected Servo operated AKV 10PS valves for those application where higher MOPD (with low coil power) and high dampening is required.

# Technical data and ordering

## AKV 10P / AKV 10PS

### AKV 10P - Rated capacity

Valve type / orifice no.	R744 <sup>2)</sup>				R407A <sup>1)</sup>		R404A/ R507 <sup>1)</sup>		K <sub>v</sub> value	C <sub>v</sub> value	Connection size Solder ODF/ODF		Code no. Single pack	Code no. Industrial pack 16 pcs. pr. pack
	Refrig.	Freezing	Refrig.	Freezing	[kW]	[TR]	[kW]	[TR]			[m <sup>3</sup> /h]	[gpm]		
	[kW]	[kW]	[TR]	[TR]										
AKV 10P0	0.44	0.69	0.13	0.20	0.34	0.10	0.21	0.06	0.003	0.0035	3/8 × 1/2	-	068F5210	068F5230
AKV 10P0	0.44	0.69	0.13	0.20	0.34	0.10	0.21	0.06	0.003	0.0035	-	10 × 12	068F5200	068F5220
AKV 10P1	1.17	1.84	0.33	0.53	0.90	0.26	0.8	0.23	0.09	0.104	3/8 × 1/2	-	068F5211	068F5231
AKV 10P1	1.17	1.84	0.33	0.53	0.90	0.26	0.8	0.23	0.09	0.104	-	10 × 12	068F5201	068F5221
AKV 10P2	2.06	3.25	0.59	0.93	1.59	0.45	1.3	0.37	0.016	0.021	3/8 × 1/2	-	068F5212	068F5232
AKV 10P2	2.06	3.25	0.59	0.93	1.59	0.45	1.3	0.37	0.016	0.021	-	10 × 12	068F5202	068F5222
AKV 10P3	3.14	4.97	0.90	1.41	2.43	0.69	2.0	0.57	0.024	0.028	3/8 × 1/2	-	068F5213	068F5233
AKV 10P3	3.14	4.97	0.90	1.41	2.43	0.69	2.0	0.67	0.024	0.028	-	10 × 12	068F5203	068F5223
AKV 10P4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	3/8 × 1/2	-	068F5214	068F5234
AKV 10P4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	-	10 × 12	068F5204	068F5224
AKV 10P5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	3/8 × 1/2	-	068F5215	068F5235
AKV 10P5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	-	10 × 12	068F5205	068F5225
AKV 10P6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	3/8 × 1/2	-	068F5216	068F5236
AKV 10P6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	-	10 × 12	068F5206	068F5226
AKV 10P7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	1/2 × 5/8	-	068F5217	-
AKV 10P7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	-	12 × 16	068F5207	-

### AKV 10PS- Rated capacity

Valve type / orifice no.	R744 <sup>2)</sup>				R407A <sup>1)</sup>		R404A/ R507 <sup>1)</sup>		K <sub>v</sub> value	C <sub>v</sub> value	Connection size Solder ODF/ODF		Code no. Single pack	Code no. Industrial pack 16 pcs. pr. pack
	Refrig.	Freezing	Refrig.	Freezing	[kW]	[TR]	[kW]	[TR]			[m <sup>3</sup> /h]	[gpm]		
	[kW]	[kW]	[TR]	[TR]										
AKV 10PS4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	3/8 × 1/2	-	068F4044	068F5184
AKV 10PS4	6.10	9.64	1.74	2.75	4.71	1.34	3.1	0.88	0.046	0.053	-	10 × 12	068F4034	068F5174
AKV 10PS5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	3/8 × 1/2	-	068F4045	068F5185
AKV 10PS5	8.49	13.4	2.42	3.82	6.55	1.87	4.9	1.39	0.064	0.074	-	10 × 12	068F4035	068F5175
AKV 10PS6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	3/8 × 1/2	-	068F4046	068F5186
AKV 10PS6	15.1	23.9	4.31	6.81	11.7	3.32	7.8	2.22	0.114	0.132	-	10 × 12	068F4036	068F5176
AKV 10PS7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	1/2 × 5/8	-	068F4047	-
AKV 10PS7	24.6	39.3	7.00	11.1	18.9	5.39	12.5	3.55	0.185	0.214	-	10 × 16	068F4037	-

<sup>1)</sup> Rated capacities are based on:

Condensing temperature t<sub>c</sub> = 38 °C / 100 °F

Liquid temperature t<sub>l</sub> = 37 °C / 98 °F

Evaporating temperature t<sub>e</sub> = 4 °C / 39 °F

<sup>2)</sup> Rated capacities are based on:

Condensing temperature t<sub>c</sub> = 0 °C / 32 °F

Evaporating temperature Refrig. t<sub>e</sub> = -10 °C / 14 °F

Evaporating temperature Freezing. t<sub>e</sub> = -30 °C / -22 °F

Subcooling = 1 °C / 1.8 °F

C<sub>v</sub> value is calculated from K<sub>v</sub> value in above table

### Spare part ordering - Single pack

Kit	Description	Code no.
Kit 1	Orifice kit direct operated AKV 10P0-3	068F5151
Kit 2	orifice kit direct operated AKV 10P4-7	068F5152
Kit 3	Armature kit direct operated AKV 10P0-7	068F5153
Kit 4	Filter kit direct operated AKV 10P	068F5154
Kit 5	Orifice kit servo operated AKV 10PS4-7	068F5155
Kit 6	Filter kit servo operated AKV 10PS	068F5156
Kit 7	Armature kit servo operated AKV 10PS4-7	068F5161

## Coolselector<sup>®2</sup>



### Valve sizing using calculation software

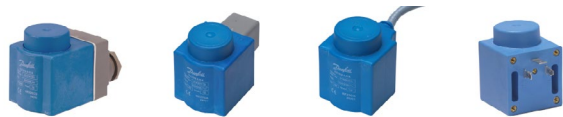
It is strongly recommended to use **Coolselector<sup>®2</sup>** to find the correct valve for your application. The software can be downloaded from the Danfoss website. When using the calculation software it is recommended to choose a valve that is between 50% and 75% loaded at the nominal capacity. In addition, the liquid velocity in the line leading to the valve should not exceed 1m/s (3ft/s).

You can download it from <http://coolselector.danfoss.com>

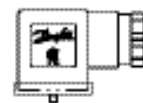
## Technical data and ordering

### AKV 10P / AKV 10PS

Standard coil for AKV 10P/ AKV 10PS



Coil type	MOPD (Max. Operation Pressure Differential)						
	Voltage	Frequency	Power consumption	Connection	Multi pack Code no.	Industrial pack Code no.	
	[V AC]	[Hz]	[W]			Code no.	Pcs. per pack
BE230CS	230	50	17	terminal box	018F6732	-	50
BE230CS	230	50	17	DIN plugs	018F6193	-	50
BF230CS	230	50	17	1 m cable	018F6282	018F8232	24
BF230CS	230	50	17	3 m cable	-	018F8290	12
BF230CS	230	50	17	8 m cable	018F4961	018F8291	6
BE240CS	240	60	15	terminal box	018F6713	-	-
BE240CS	240	60	15	terminal box	018F6814	-	-
BE240CS	240	60	15	1 m cable	018F6264	-	-
BG110BS	240	60	15	terminal box	018F6813	-	-



### Accessories (coil)

Type	Voltage	Frequency	Quantity	Code no.
	[V]	[Hz]	[Pcs]	Multi pack
DIN plug	Max. 250	50 / 60	100	042N0156

Single pack = 1 product in a box with installation guide

Multi pack = box with x pieces single pack (can be split)

Industrial pack = x pieces in one box (cannot be split)

### AKV 10P / AKV 10PS

UL coil for AKV 10P / AKV 10PS



Coil type	Wire length		Voltage	Frequency	Power consumption	Multi pack Code no.
	[in]	[cm]				
<i>Junction box NEMA 2 for AKV 10P / AKV 10PS</i>						
BJ024CS	-	-	24	50 / 60	14	018F4100
BJ120CS	-	-	110	50	16	018F4110
BJ120CS	-	-	120	60	15	
BJ240CS	-	-	208 - 240	60	14	018F4120
BJ240CS	-	-	230	50	17	
<i>Conduit boss NEMA 4 for AKV 10P / AKV 10PS</i>						
BX024CS	18	46	24	50 / 60	14	018F4102
BX024CS	71	180	24	50 / 60	14	018F4103
BX024CS	98	250	24	50 / 60	14	018F4104
BX120CS	18	46	110	50	16	
BX120CS	18	46	120	60	15	018F4112
BX120CS	36	91	110	50	16	
BX120CS	36	91	120	60	15	018F4113
BX120CS	71	180	110	50	16	
BX120CS	71	180	120	60	15	018F4114
BX120CS	98	250	110	50	16	
BX120CS	98	250	120	60	15	018F4115
BX240CS	18	46	208 - 240	60	14	
BX240CS	98	250	230	50	17	018F4122
BX240CS	18	46	208 - 240	60	14	
BX240CS	98	250	230	50	17	018F4123