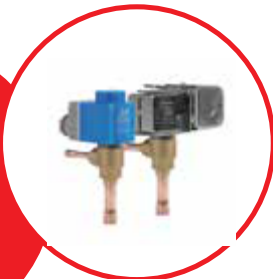


AKV 10P / AKV 10PS, Electric expansion valves

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).

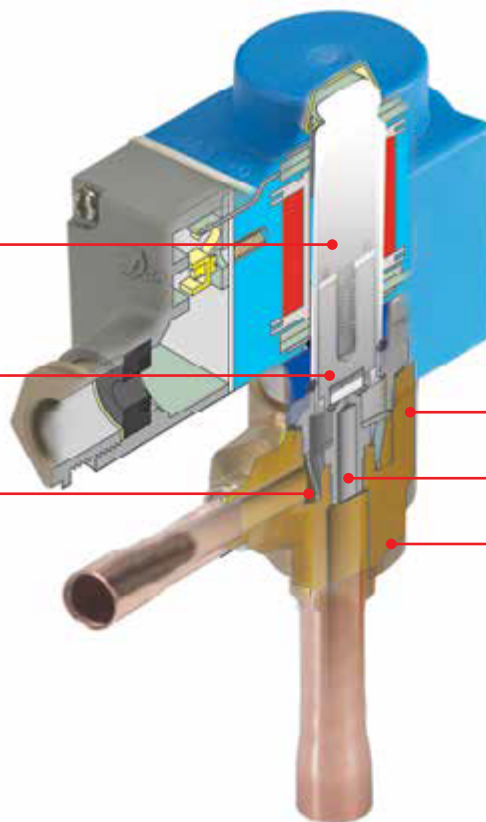
Features AKV 10P/ AKVP 10PS



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

Refrigerants:

- | | | | |
|-----------|---------|---------|---------|
| • R1233zd | • R407F | • R452B | • R516A |
| • R1234yf | • R407H | • R134a | • R600 |
| • R1234ze | • R410A | • R513A | • R600a |
| • R1270 | • R422B | • R454B | • R744 |
| • R134a | • R422D | • R454C | |
| • R22 | • R438A | • R455A | |
| • R23 | • R444B | • R463A | |
| • R290 | • R448A | • R507 | |
| • R32 | • R449A | • R513A | |
| • R404A | • R449B | • R513B | |
| • R407A | • R450A | • R515A | |
| • R407C | • R452A | • R515B | |

Benefit:

- 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
- The AKV 10P/10PS valve are supplied as a parts programme, as follows:
 - Separate valve incl. exchangeable orifice
 - Separate coil

Technical data and ordering

AKV 10P / AKV 10PS

Direct operated Valve

	Direct operated Valve	Servo operated Valve
Valve type	AKV 10P0 to AKV 10P7	AKV 10PS4 to AKV 10PS7
Working principle	PWM (Pulse-width modulation)	PWM (Pulse-width modulation)
Recommended period of cycle time	6 Seconds	6 Seconds
Regulation range (Capacity range)	10 - 100%	10 - 100%
Connection type	Solder	Solder
Evaporating temperature	-60 - 60°C	-60 - 60°C
Ambient temperature	-50 - 50°C	-50 - 50°C
MOPD, AKV 10P0 to AKV 10P6	35 bar / 508 psig	35 bar / 508 psig
MOPD, AKV 10P7	18 bar / 261 psi	18 bar / 261 psi
Min. OPD, AKV 10P0 to AKV 10P7	0 bar / 0 psi	0.1 bar / 1.45 psi
Filter, replaceable	Internal 100 µm	Internal 53 µm
Max. working pressure	90 barg / 1305 psig	90 barg / 1305 psig
MAP (Max. Abnormal Pressure)	1305 psig	1305 psig
COT (Continuous Operation Temperature)	60°C	60°C

Note:

1) 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.

2) Recommended Danfoss Filter ELIMINATOR® Hermetic filter drier, type DML / DMSC

Technical data and ordering

AKV 10P / AKV 10PS

AKV 10P - Rated capacity

Valve type / orifice no.	R744 ²⁾		R404A / R507 ¹⁾	R448A	R449A	R452A	K _v Value	Connection size Solder ODF / ODF	Code no. Single pack
	Refrig.	Freezing							
	[kW]	[kW]					[m ³ /h]	[in]	
AKV 10P0	0.44	0.69	0.21	0.32	0.31	0.25	0.003	3/8 × 1/2	068F5210
AKV 10P1	1.17	1.84	0.8	0.95	0.93	0.73	0.09	3/8 × 1/2	068F5211
AKV 10P2	2.06	3.25	1.3	1.68	1.64	1.29	0.016	3/8 × 1/2	068F5212
AKV 10P3	3.14	4.97	2.0	2.57	2.51	1.98	0.024	3/8 × 1/2	068F5213
AKV 10P4	6.10	9.64	3.1	4.99	4.88	3.84	0.046	3/8 × 1/2	068F5214
AKV 10P5	8.49	13.4	4.9	6.95	6.79	5.35	0.064	3/8 × 1/2	068F5215
AKV 10P6	15.1	23.9	7.8	12.38	12.1	9.54	0.114	3/8 × 1/2	068F5216
AKV 10P7	24.6	39.3	12.5	20.07	19.63	15.47	0.185	1/2 × 5/8	068F5217

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.

AKV 10PS - Rated capacity

Valve type / orifice no.	R744 ²⁾		R404A / R507 ¹⁾	R448A	R449A	R452A	K _v Value	Connection size Solder ODF / ODF	Code no. Single pack
	Refrig.	Freezing							
	[kW]	[kW]					[m ³ /h]	[in]	
AKV 10PS4	6.10	9.64	3.1	4.997	4.88	3.84	0.046	3/8 × 1/2	068F4044
AKV 10PS5	8.49	13.4	4.9	6.95	6.79	5.35	0.064	3/8 × 1/2	068F4045
AKV 10PS6	15.1	23.9	7.8	12.38	12.1	9.54	0.114	3/8 × 1/2	068F4046
AKV 10PS7	24.6	39.3	12.5	20.07	19.63	15.47	0.185	1/2 × 5/8	068F4047

¹⁾ Rated capacities are based on:

Condensing temperature t_c = 38°C / 100°F

Liquid temperature t_l = 37°C / 98°F

Evaporating temperature t_e = 4°C / 39°F

²⁾ Rated capacities are based on:

Condensing temperature t_c = 0°C / 32°F

Evaporating temperature Refrig. t_e = -10°C / 14°F

Evaporating temperature Freezing. t_e = -30°C / -22°F

Subcooling = 1°C / 1.8°F

C_v value is calculated from K_v value in above table

Spare part ordering - Single pack

Description	Code no.
Orifice kit direct operated AKV 10P0-3	068F5151
Orifice kit direct operated AKV 10P4-7	068F5152
Orifice kit servo operated AKV 10PS4-7	068F5155
Filter kit direct operated AKV 10P	068F5154
Filter kit servo operated AKV 10PS	068F5156
Armature kit direct operated AKV 10P0-7	068F5153
Armature kit servo operated AKV 10PS4-7	068F5157

Note: Old AKV 10/AKVH 10 body can be converted to AKV 10P/ AKV 10PS by using the respective armature kit.

Technical data and ordering

AKV 10P / AKV 10PS

AKV 10P - Rated capacity

Coil type	Voltage	Frequency	Power consumption	Electrical connection	SKU / Code number	Picture	Application Comments
BE230CS	230	50	17	Term. box	018F6732		All range
BE230AS	230	50	12	Term. box	018F6701		AKV10P0-3 AKV10PS4-7
BG230AS	230	50	15	Term. box	018F6801		AKV10P0-3 AKV10PS4-7

AKV10 and AKVH 10 cross reference to AKV 10P and AKV 10PS

AKV Danfoss codes	Product Description	New AKV 10P (direct) code	Description	New AKV 10PS (servo) code	Description
068F1161	AKV10-1 Valve ODF-ODF 3/8-1/2	068F5211	AKV 10P1 Valve ODF-ODF 3/8-1/2	NA	NA
068F1164	AKV10-2 Valve ODF-ODF 3/8-1/2	068F5212	AKV 10P2 Valve ODF-ODF 3/8-1/2	NA	NA
068F1167	AKV10-3 Valve ODF-ODF 3/8-1/2	068F5213	AKV 10P3 Valve ODF-ODF 3/8-1/2	NA	NA
068F1170	AKV10-4 Valve ODF-ODF 3/8-1/2	068F5214	AKV 10P4 Valve ODF-ODF 3/8-1/2	068F4044	AKV 10PS4 Valve ODF-ODF 3/8-1/2
068F1173	AKV10-5 Valve ODF-ODF 3/8-1/2	068F5215	AKV 10P5 Valve ODF-ODF 3/8-1/2	068F4045	AKV 10PS5 Valve ODF-ODF 3/8-1/2
068F1176	AKV10-6 Valve ODF-ODF 3/8-1/2	068F5216	AKV 10P6 Valve ODF-ODF 3/8-1/2	068F4046	AKV 10PS6 Valve ODF-ODF 3/8-1/2
068F1179	AKV10-7 Valve ODF-ODF 1/2-5/8	068F5217	AKV 10P7 Valve ODF-ODF 1/2-5/8	068F4047	AKV 10PS7 Valve ODF-ODF 3/8-1/2
068F4078	AKVH10-0 VALVE ODF 3/8-1/2	068F5210	AKV 10P0 Valve ODF-ODF 3/8-1/2	NA	NA
068F4079	AKVH10-1 VALVE ODF 3/8-1/2	068F5211	AKV 10P1 Valve ODF-ODF 3/8-1/2	NA	NA
068F4080	AKVH10-2 VALVE ODF 3/8-1/2	068F5212	AKV 10P2 Valve ODF-ODF 3/8-1/2	NA	NA
068F4081	AKVH10-3 VALVE ODF 3/8-1/2	068F5213	AKV 10P3 Valve ODF-ODF 3/8-1/2	NA	NA
068F4082	AKVH10-4 VALVE ODF 3/8-1/2	068F5214	AKV 10P4 Valve ODF-ODF 3/8-1/2	068F4044	AKV 10PS4 Valve ODF-ODF 3/8-1/2
068F4083	AKVH10-5 VALVE ODF 3/8-1/2	068F5215	AKV 10P5 Valve ODF-ODF 3/8-1/2	068F4045	AKV 10PS5 Valve ODF-ODF 3/8-1/2
068F4084	AKVH10-5 VALVE ODF 3/8-1/2	068F5216	AKV 10P6 Valve ODF-ODF 3/8-1/2	068F4046	AKV 10PS6 Valve ODF-ODF 3/8-1/2

Benefits of AKVP

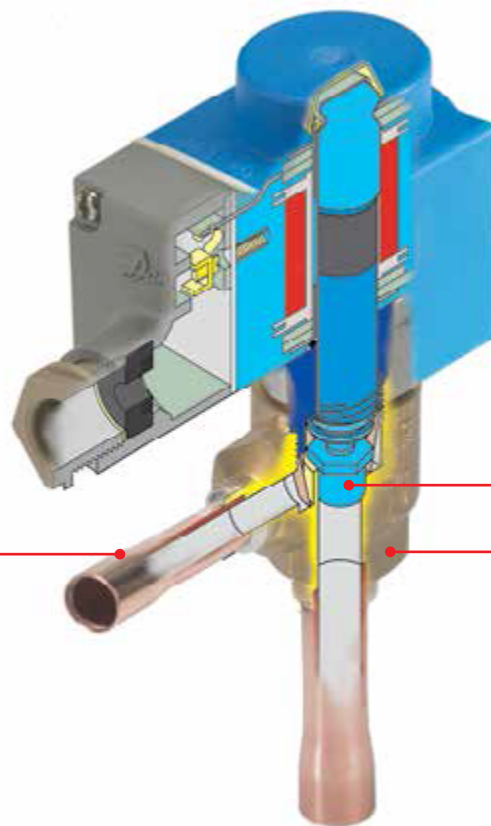


AKV, Electric expansion valves

AKV are electrically operated expansion valves designed for refrigeration plants.
The AKV valves are designed for use with a controller from Danfoss' range of ADAP-KOOL® controllers.

The AKV valves are supplied as a parts programme with separate valve body and coil (with terminal box, cable or DIN plug).
AKV has an exchangeable orifice. Refrigerants: R744, R22 / R407C, R404A / R507, R410A, R134a, R407A, R23.

Features AKV



Available with ODF solder connections (AKV 15 and AKV 20 – straightway,

The orifice assembly is replaceable

Both expansion valve and solenoid valve

Facts

Applications:

- Traditional refrigeration
- Cold rooms
- water chiller

Maximum working pressure:

- AKV 10–1–6 PS / MWP = 52 bar / 754 psig
- AKV 10–7 PS / MWP = 42 bar / 610 psig
- AKV 15–1,2,3 PS / MWP = 42 bar / 610 psig
- AKV 15–4 PS / MWP = 28 bar / 400 psig
- AKV 20 PS / MWP = 28 bar / 400 psig

Refrigerants:

- | | |
|---------|---------|
| • R407F | • R515B |
| • R422B | • R134a |
| • R422D | • R22 |
| • R448A | • R23 |
| • R449A | • R404A |
| • R449B | • R407A |
| • R450A | • R407C |
| • R452A | • R410A |
| • R513A | • R507 |
| • R407H | • R744 |
| • R438A | |
| • R463A | |
| • R513B | |
| • R515A | |

Capacity range:

- 0.2 – 114 TR / 0.8 – 404 kW

Benefit:

- The AKV valves are supplied as a parts programme, as follows:
- Separate valve incl. exchangeable orifice
- Separate coil
- The valve requires no adjustment

Technical data and ordering

AKV

Valve excluded coil

Valve type	Rated capacity kW				kv value	Connections	
	R22/ R407C	R134a	R404A/ R507	R407C		Solder ODF	
					m ³ /h	Inlet × outlet (in.)	Code no.
AKV 15-1	25.5	21.2	19.6	25.2	0.25	3/4 × 3/4	068F5000
AKV 15-2	40.8	33.8	31.4	40.4	0.4	3/4 × 3/4	068F5005
AKV 15-3	64.3	53.3	49.4	63.7	0.63	7/8 × 7/8	068F5010
AKV 15-4	102	84.6	78.3	101	1	1 1/8 × 1 1/8	068F5015
AKV 20-1	102	84.6	78.3	101	1	1 3/8 × 1 3/8	042H2020
AKV 20-2	163	135	125	170	1.6	1 3/8 × 1 3/8	042H2022
AKV 20-3	255	212	196	252	2.5	1 5/8 × 1 5/8	042H2024

Rated capacities are based on:

Condensing temperature $t_c = 32^\circ\text{C}$

Liquid temperature $t_l = 28^\circ\text{C}$

Evaporating temperature $t_e = 5^\circ\text{C}$

AKV

Coil



Type	Description	Code no.
Coil	240 V a.c. 12 W, 50 Hz with Terminal Box	018F6802
	230 V a.c. 10 W, 50 Hz with Terminal Box	018F6701
	230V a.c. 20W, 50Hz with Terminal Box	018F6905
	24 V a.c. 10 W, 50 Hz with Terminal Box	018F6707