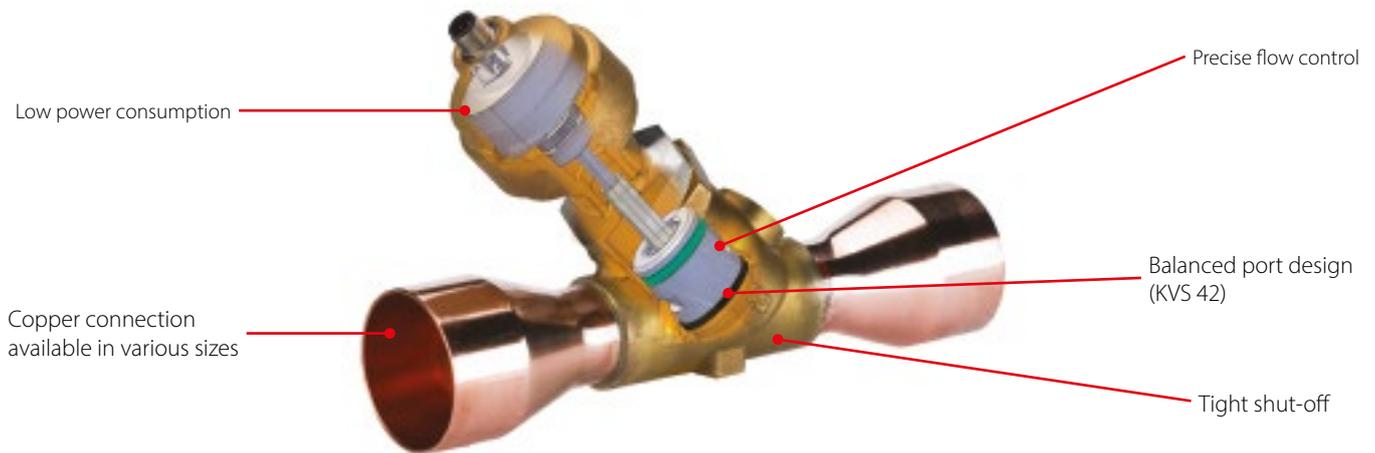


KVS, Electric suction modulating control valve

KVS are electrically operated suction modulating control valves for transport and refrigeration applications. Accurate temperature or pressure control is obtained by modulating the refrigerant flow in the evaporator with a current or voltage driver.

With an EKC 368 controller (current driver) and an AKS sensor placed in the media to be controlled, an accuracy better than $\pm 0.5 \text{ K} / \pm 0.9 \text{ }^\circ\text{F}$ can be obtained. The balanced design provides bi-flow operation as well as solenoid shut-off function in both flow directions at MOPD 33 bar / 479 psi.



Facts

Application:

- Traditional refrigeration
- Air conditioning units
- Transport refrigeration
- Supermarkets
- Applicable to R410A, R407C, R404A, R134a, R507, R22

For a fully updated list of approved refrigerants, visit www.products.danfoss.com and search for individual code numbers, where refrigerants are listed as part of product specification.

- Biflow
- High resolution for precise control
- Low power consumption
- Corrosion resistant design external as well as internal
- Solenoid tight shut-off
- Balanced port design (KVS 42)
- Cable and connector assemblies as accessories
- Controller: Electronic controller EKC 368, temperature sensors and pressure transmitters

Technical data and ordering



KVS - Electric suction modulating control valve

Technical data

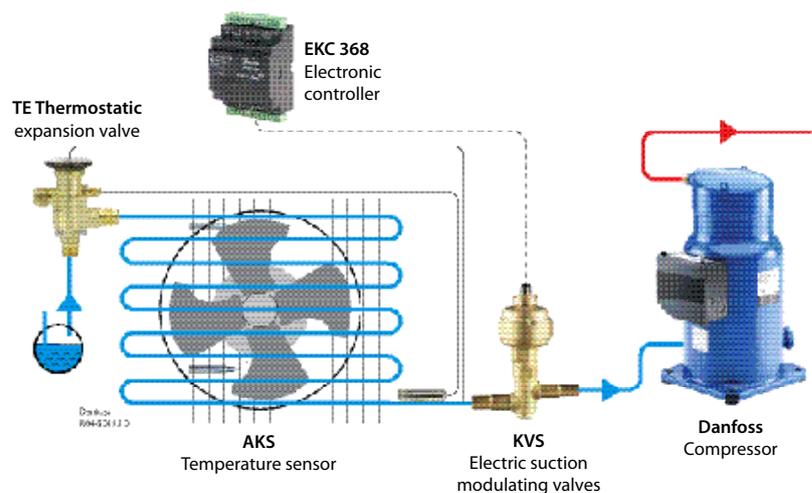
Parameter	KVS 15	KVS 42
Refrigerant oil	All mineral and ester oils	All mineral and ester oils
CE marking	No	Yes
MOPD	33 bar / 479 psi	33 bar / 479 psi
Max. working pressure	45.5 bar / 660 psi	34 bar / 493 psi
Refrigerant temperature range	-40 – 65 °C / -40 – 149 °F	-40 – 65 °C / -40 – 149 °F
Ambient temperature	-40 – 60 °C / -40 – 140 °F	-40 – 60 °C / -40 – 140 °F
Total stroke	13 mm / ½ in	17.2 mm / ⅝ in
Motor enclosure	IP67	IP67
Material of Construction	Body and AST enclosure: Brass; Connector: Copper	Body and AST enclosure: Brass; Connector: Copper

KVS - Electric suction modulating control valve

Electrical data

Parameter	KVS 15 and KVS 42
Stepper motor type	Bi-polar - permanent magnet
Step mode	2 phase full step
Phase resistance	52 Ω ± 10%
Phase inductance	85 mH
Holding current	Depends on application. Full current allowed (100% duty cycle).
Step angle	7.5° (motor), 0.9° (lead screw), Gearing ration 8.5:1. (38 / 13)2:1
Nominal voltage	(Constant voltage drive) 12 V DC -4% – 15%
Phase current	(Using chopper drive) 100 mA RMS -4% – 15%
Max. total power	Voltage/current drive: 5.5 / 1.3 W (UL: NEC class 2)
Step rate	150 steps / second (constant voltage drive) 0 – 300 steps / second 300 recommended (chopper current drive)
Total steps	KVS 15: 2625 (160 – 0) steps KVS 42: 3810 (160 – 0) steps
Full travel time	KVS 15: 17 / 8.5 second (voltage / current) KVS 42: 25.4 / 12.7 second (voltage / current)
Lifting height	KVS 15: 13 mm / ½ in KVS 42: 17.2 mm / ⅝ in
Reference position	Overdriving against the full close position
Electrical connection	M12 connector

- Related products**
 Electronic controller
Type EKC 368
 Temperature sensors
Type AKS
 Service driver
Type AST-G



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Technical data and ordering



KVS - Electric suction modulating control valve

Ordering, valves in single pack

Type	Rated capacity ¹⁾						KVS valve		
	R22		R134a		R404A/R507		Connection A × B		Code no. single pack
	[kW]	[TR]	[kW]	[TR]	[kW]	[TR]	[mm]	[in]	
KVS 15	5.15	1.31	3.78	0.94	4.58	1.07	16	5/8	034G4252
	5.15	1.31	3.78	0.94	4.58	1.07	22	7/8	034G4253
KVS 42	40.4	11.4	29.3	8.3	35.3	10.0	22	7/8	034G2858
	40.4	11.4	29.3	8.3	35.3	10.0	28	1 1/8	034G2850
	40.4	11.4	29.3	8.3	35.3	10.0	35	1 3/8	034G2851
	40.4	11.4	29.3	8.3	35.3	10.0	–	1 3/8	034G2852

¹⁾ Rated capacity is the valve capacity at:
 - evaporating temperature $t_e = -10^\circ\text{C} / 14^\circ\text{F}$
 - condensing temperature $t_c = 25^\circ\text{C} / 77^\circ\text{F}$
 - pressure drop across valve $\Delta p = 0.2 \text{ bar} / 2.9 \text{ psi}$

M12 Female - Connector Cable

Ordering

Cable quality	Temperature range	Cable length (L)		Design	Code no. single pack
Jacket: PVC	-50 – 80 °C / -58 – 176 °F	2 m	6.6 ft	M12, 4 pins to actuator and flying wires for driver connection	034G2201
	-50 – 80 °C / -58 – 176 °F	8 m	26.2 ft		034G2200
Jacket: CPE	-40 – 80 °C / -40 – 176 °F	2 m	6.6 ft		034G2202

KVS - Electric suction modulating control valve

Accessory

Type	Description	Type designation	Code no. Multipack
Cable filter	Cable filter for KVS valve	AKA 211	084B2238

M12 angle cable

Specification

Jacket	PVC - black
Cable outer sheath	Oil - resistant
Water proof rating	IP 67
Operating temperature range	-40 – 80 °C
Wire type	Twisted pair, cross section 20 AWG / 0.5 mm ²
Cable outer diameter	7.0 mm
Minimum bending radius	10 x cable diameter
Cable combustibility / test	Flame retardant / VW-1 / CSA FT - 1
M12 standard	EN 61076-2-101
Reference standard	UL style 2464 and DIN VDE 0812
LVD directive	2014/35/EU
Approval	CE, RoHS, UL, EAC, LLC CDC EURO TYSK

Ordering

Cable	Cable length (L)	Insulation	Packing format	Code no.
PVC - Black	2 m / 6.6 ft	SR-PVC	Single pack	034G7073
	8 m / 26.2 ft	SR-PVC	Single pack	034G7074

Caution: M12 angle cable is not approved for flammable applications.

Dimensions

