

Climatix™

Modulating refrigerant valve with magnetic actuator, PS50

MVL702..



Modulating refrigerant valve - for flammable and nonflammable refrigerants.

- One valve for expansion, hot-gas and suction throttle applications
- Fast positioning (1 sec)
- Normally closed (NC)
- Integrated positioning sensor for precise control
- Linear magnetic drive
- Biflow function to max. 40 bar differential pressure
- Hermetically sealed laser-welded stainless steel housing
- Copper coated pipe connections for easy soldering
- Completely qualified with Siemens valve driver POL94M
- Control sources (received positioning signal) can be analog, via Modbus RTU or via Peripheral bus (Climatix controller)
- High resolution and control accuracy
- Five valve sizes: k_{vs} values from 0.1 to 2.9 m³/h

MVL702

The MVL702 magnetic refrigerant valve is a modulating valve for refrigerant circuits such as in chillers and heat pumps and is used in expansion, hot-gas and suction throttle applications.

Other applications including close-control and rooftop air-handling units benefit from the MVL702 features.

The valve can use all commonly available refrigerants* including R32, R134a, R290, R410A, R448A, R449A, R450A, R452A, R513A, R454B, R454C, R1234yf, R1234ze(E), etc.

NOTICE

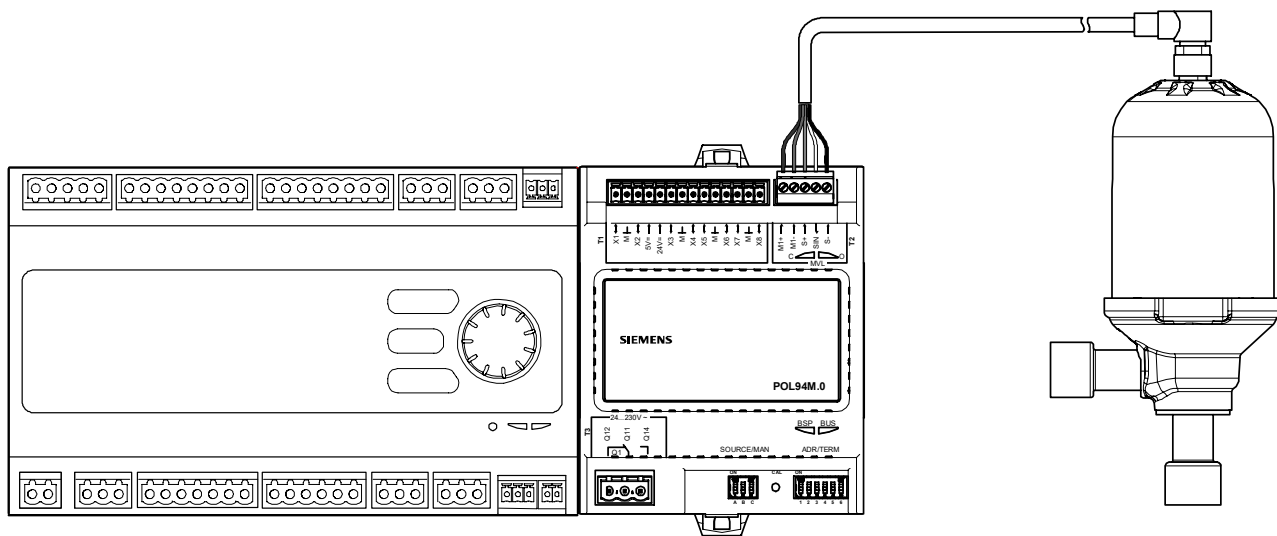


*** Risk assessment for all flammable refrigerants**

- The system operator is required to perform a risk assessment on all flammable refrigerants as per local applicable standards and regulations.
- See also section "Standards, directives and approvals"!

Control system

The MVL702 valves operate together with extension module POL94M.



Climatix controller, e.g. C600

Climatix extension module: POL94M

Magnetic refrigerant valve MVL702

Features and benefits

Positioning speed

MVL702 valves are fast acting (fully opening within 1 sec) providing maximum superheat signal stability while minimizing suction gas superheat, improving energy efficiency.

Normally closed by design

MVL702 valves have a normally closed (NC) function by design, i.e. the valve closes immediately in the event of a loss of power to the valve.

Internal tightness

The combination of internal sealing materials with precise production alignment provide a very high level of internal tightness, similar or, in some cases, better than traditional solenoid valves. This eliminates the need for additional solenoid valves.

Precise positioning

The MVL702 valves have an integrated positioning sensor to measure the position in real time and provide feedback to the POL94M valve driver. The POL94M automatically corrects any differences between the commanded and measured position in milliseconds.

Duty cycle 100%

The MVL702 valve is designed for continuous positioning without delay and provides optimum control performance even in highly dynamic control loops.

No reference run

Continuous automatic correction during runtime means that the refrigerant system is available at all times for cooling or heating. This eliminates the need to program time slots for valve referencing and/or synchronization.

High resolution and control accuracy

Fast and accurate: Nearly stepless resolution due to the high number of steps combined with very high actuating speeds and short process times on the controller in milliseconds.

Linear magnetic actuator

Linear magnetic actuators provide direct valve opening/closing without mechanical friction (no spindle nut). Applications with oil-free refrigerant systems are possible without reducing system lifecycle.

Biflow valve

Flow direction can be largely freely selected. Background: the fluid temperature at the valve connections positively influences the temperature of the actuator, so that the valve can be used on an extended range of applications.

Hermetically sealed

MVL702 valve has a laser-welded stainless steel housing.

Refrigerant cooled actuator/driving coil

The actuator is directly cooled by the refrigerant itself and provides full opening force even under demanding high ambient temperature conditions to enhance operational safety, e.g. during peak cooling demand in summer.

Copper-coated connectors for simplified soldering

For use with conventional solder for copper connections with a lower silver content, providing cost advantages over steel connections.

Qualified Climatix "plug & play" system

Simplified integration at the customer: Controller, valve driver, and valve are from the same source and are fully tested.

Positioning signal: analog, via Modbus RTU or via Peripheral bus

POL94M offers a range of control sources (see Product documentation, #2).

Type summary

Type	Pipe connections		k _{vs} ¹⁾		Δp		MOP	Q ₀ ²⁾			
	A × AB		A → AB	AB → A	A → AB	AB → A	-	R134a	R290	R32	
	[inch]	[mm]	[m ³ /h]	[m ³ /h]	[bar]	[bar]	[bar]	[kW]	[kW]	[kW]	
MVL702.09-09-0.1	3/8" × 3/8"	-	0.1	0.1	36	40	50	7.1	10.3	17.6	
MVL702.10-10-0.1	-	10 × 10									
MVL702.09-09-0.2	3/8" × 3/8"	-	0.2	0.16							
MVL702.10-10-0.2	-	10 × 10									
MVL702.13-13-0.4	1/2" × 1/2"	-	0.4	0.36							
MVL702.16-16-0.4	5/8" × 5/8"	16 × 16									
MVL702.16-16-1.0	5/8" × 5/8"	16 × 16	1.0	0.8							
MVL702.22-22-1.0	7/8" × 7/8"	22 × 22									
MVL702.22-22-2.9	7/8" × 7/8"	22 × 22	2.9	3.1 ³⁾	30 ³⁾ / 40 ⁴⁾		50 / 34.4 ⁵⁾	207	301	511	
MVL702.22-29-2.9	7/8" × 1 1/8"	-			34.4 ⁵⁾	30 ³⁾ / 34.4 ⁵⁾ / 40 ⁴⁾					
MVL702.29-29-2.9	1 1/8" × 1 1/8"	-									

¹⁾ k_{vs} Nominal flow rate of water through the fully opened valve (H₁₀₀) at a differential pressure of 100 kPa (1 bar) to VDI/VDE 2173.
Note: Applications with fluid temperature above 70 °C on request.

²⁾ Q₀ Tentative data: Refrigeration capacity in expansion applications, flow direction A → AB, t₀ = +4 °C, t_c = 38 °C, superheating Δt_{oh} = 6 K, subcooling Δt_{cu} = 1 K, without pressure drop.

³⁾ The max. fluid temperature is limited to max. 65 °C at Δp=30 bar and 100% valve opening. This corresponds to k_{vs}=3.1 m³/h

⁴⁾ Operation at pressure difference Δp=40 bar is possible with limited valve opening (max. 80%). This corresponds to k_{vs}=2.5 m³/h.

⁵⁾ Limits for flammable refrigerants:

- Valid for valves with pipe connection 1 1/8" with A2L, A2 and A3 refrigerants.
- The MOP (max. operation pressure) is limited to 34.4 bar and the max. allowed pressure differences Δp are reduced accordingly. The related valves fulfill PED directive category I.



For accurate valve sizing, we recommend the valve selection program "RVASP Refrigeration Valve Selection Program". Contact your local Siemens representative for further information.

Single pack

Type	Stock number	Pipe connections		Weight*	Quantity
		A × AB			
		[inch]	[mm]	[kg]	[pcs]
MVL702.09-09-0.1	S55320-M131	3/8" × 3/8"	-	2.6	1
MVL702.10-10-0.1	S55320-M116	-	10 × 10		
MVL702.09-09-0.2	S55320-M132	3/8" × 3/8"	-		
MVL702.10-10-0.2	S55320-M117	-	10 × 10		
MVL702.13-13-0.4	S55320-M118	1/2" × 1/2"	-	2.8	
MVL702.16-16-0.4	S55320-M119	5/8" × 5/8"	16 × 16		
MVL702.16-16-1.0	S55320-M120	5/8" × 5/8"	16 × 16		
MVL702.22-22-1.0	S55320-M121	7/8" × 7/8"	22 × 22	2.8	
MVL702.22-22-2.9	S55320-M122	7/8" × 7/8"	22 × 22		
MVL702.22-29-2.9	S55320-M123	7/8" × 1 1/8"	-	2.8	
MVL702.29-29-2.9	S55320-M124	1 1/8" × 1 1/8"	-	2.9	

Multipack

Type	Stock number	Pipe connections		Weight*	Quantity
		A × AB			
		[inch]	[mm]	[kg]	[pcs]
MVL702.09-09M0.1	S55320-M140	3/8" × 3/8"	-	20.2	8
MVL702.10-10M0.1	S55320-M141	-	10 × 10		
MVL702.09-09M0.2	S55320-M142	3/8" × 3/8"	-		
MVL702.10-10M0.2	S55320-M143	-	10 × 10		
MVL702.13-13M0.4	S55320-M144	1/2" × 1/2"	-	21.8	
MVL702.16-16M0.4	S55320-M145	5/8" × 5/8"	16 × 16		
MVL702.16-16M1.0	S55320-M146	5/8" × 5/8"	16 × 16		
MVL702.22-22M1.0	S55320-M147	7/8" × 7/8"	22 × 22	22.0	
MVL702.22-22M2.9	S55320-M148	7/8" × 7/8"	22 × 22		
MVL702.22-29M2.9	S55320-M149	7/8" × 1 1/8"	-	22.1	
MVL702.29-29M2.9	S55320-M150	1 1/8" × 1 1/8"	-	22.2	

* including packaging

Connection cable, with MVL702 valve connector plug



Type	Stock number	Length	Connector plug: Protection class	Released temperature range	Weight
	Single pack	[m]		[°C]	[kg]
POL0C5.20/STD	S55845-Z642	2	IP67	-40...105	0.17
POL0C5.40/STD	S55845-Z644	4			0.31
POL0C5.80/STD	S55845-Z648	8			0.60

Order example

Type	Stock number	Designation	No. of pieces
MVL702.09-09-0.1	S55320-M131	Modulating refrigerant valve with magnetic actuator, PS50 for flammable and nonflammable refrigerants, 3/8" x 3/8", kvs=0.1 m³/h	1
POL94M.00/STD *	S55845-Z243	Climatix I/O extension module; 24 V AC/DC; 8 I/O; driver for modulating refrigerant valve	1
POL0C5.20/STD	S55845-Z642	Connection cable; for modulating refrigerant valve MVL; length 2 m; 90 degree angled; protection class IP67	1
POL094.M5/STD *	S55845-Z620	Screw connector set, board-to-board connector	1

Notes

- **Delivery:** Valves, drivers, and accessories are supplied in separate packages.
- * Further information in the POL94M data sheet.



For accurate valve sizing, we recommend using our valve sizing software RVASP (Refrigeration valve selection software).
Contact your local Siemens representative for further information.

(A) When selecting valves consider:

- Maximum valve opening appears
 - usually at **minimum** pressure difference (max. evaporating and min. condensing).
 - at **maximum** compressor capacity typically at full compressor speed.
 - **Rule:** Maximum valve opening max. 90% or less of the relevant k_{vs} .
- Minimum valve opening appears
 - usually at **maximum** pressure difference (min. evaporating and max. condensing).
 - at **minimum** compressor capacity typically at minimum compressor speed.
 - **Rule:** Minimum valve opening min. 5% or more of the relevant k_{vs} .

(B) Selecting flow direction k_{vs} 0.1...2.9 m³/h

The MVL702 offers biflow capability. The k_{vs} value is different for the 2 possible flow directions. Furthermore the valve head temperature is different depending on the valve sizes (see below).

Typical case 'Forward flow direction / expansion valve'

- A→AB, Chiller in cooling mode
- Temperatures: A = 60 °C → AB= 5 °C

Typical case 'Reverse flow direction / expansion valve'

- AB→A, Chiller in heating mode (system with 4-way valve)
- Temperatures: AB = 40 °C → A = -10 °C

(C) Valve head temperature



Note: The physical relationship described below is inverted for direct operating types $k_{vs} = 0.1 + 0.2$ m³/h compared to pressure compensated types $k_{vs} = 0.4...2.9$ m³/h!

To types $k_{vs} = 0.1 + 0.2$ m³/h applies:

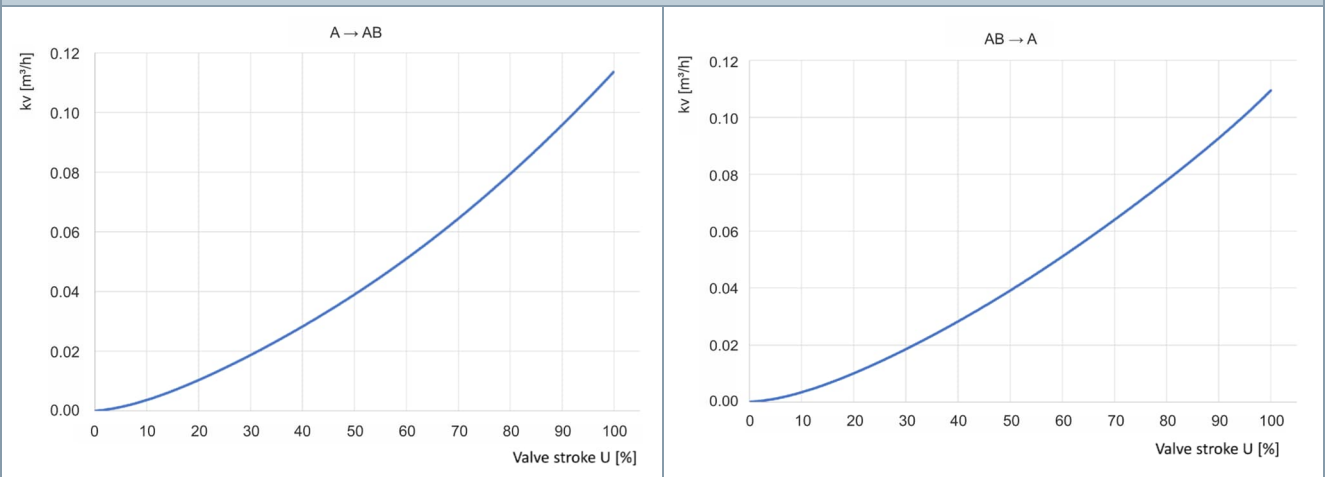
Fluid temperature at the **connection A** strongly influences the valve head temperature. At low fluid temperatures, we recommend using **connection AB** for the lower fluid temperature or insulate the valve head to prevent water condensation.

To types $k_{vs} = 0.4...2.9$ m³/h applies:

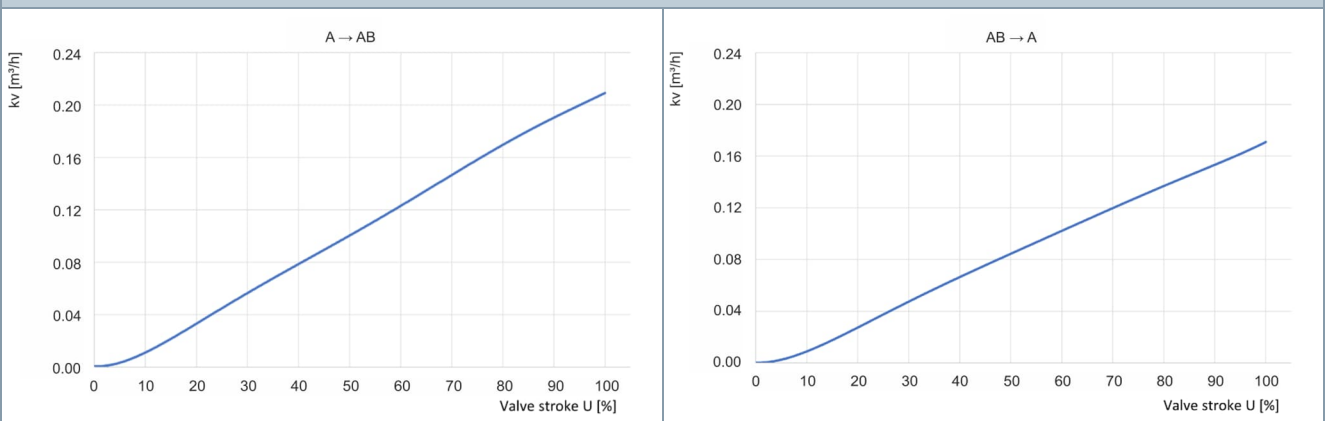
Fluid temperature at the **connection AB** strongly influences the valve head temperature. At low fluid temperatures, we recommend using **connection A** for the lower fluid temperature or insulate the valve head to prevent water condensation.

Valve flow curves

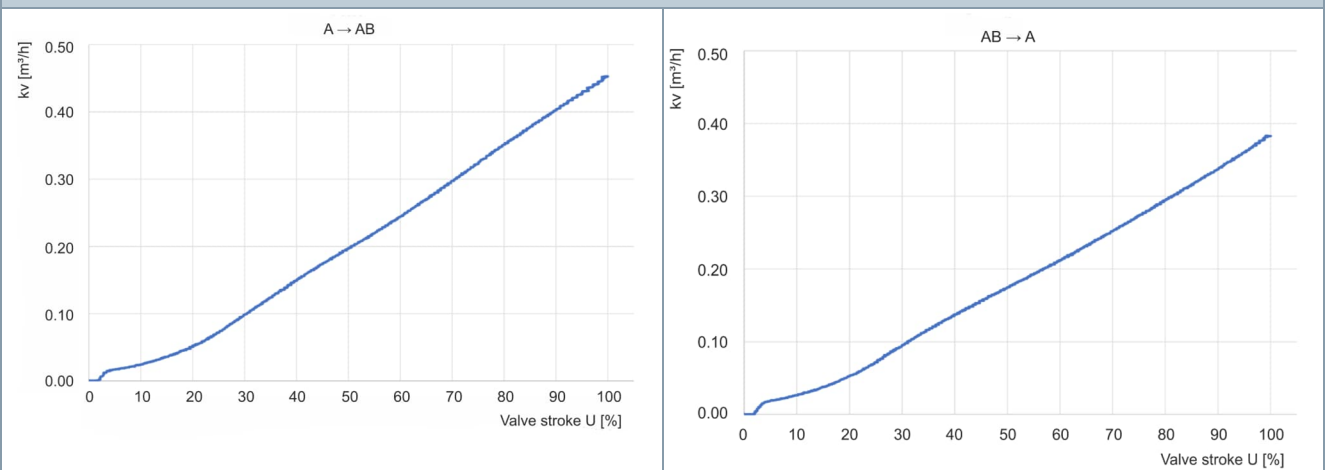
$k_{vs} = 0.1 \text{ m}^3/\text{h}$



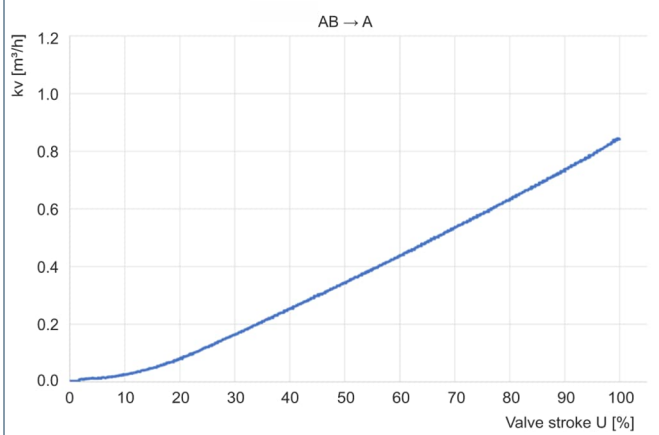
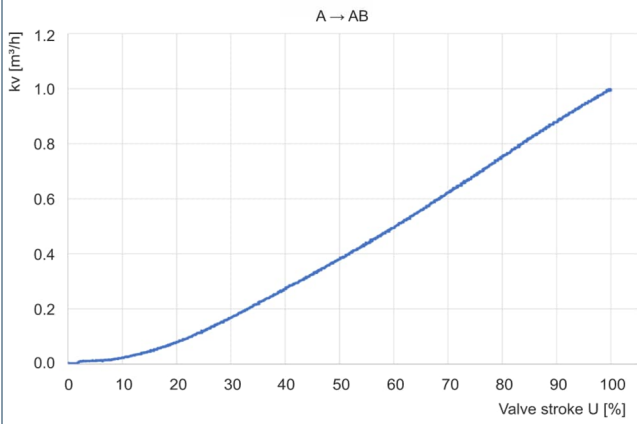
$k_{vs} = 0.2 \text{ m}^3/\text{h}$



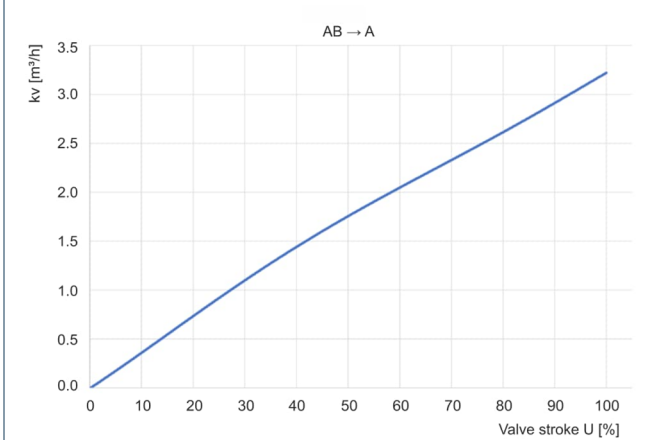
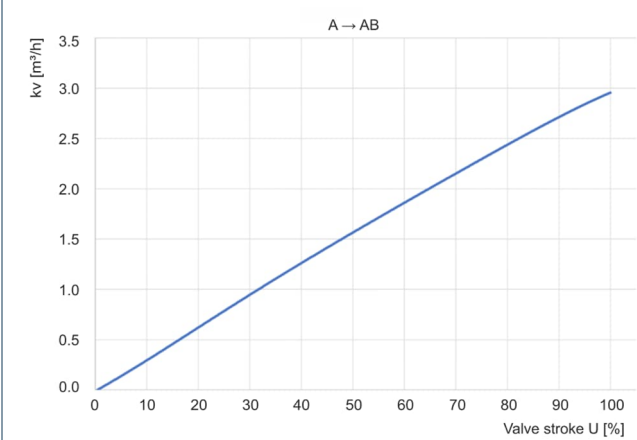
$k_{vs} = 0.4 \text{ m}^3/\text{h}$



$k_{vs} = 1.0 \text{ m}^3/\text{h}$



$k_{vs} = 2.9 \text{ m}^3/\text{h}$



All shown flow curves are measured at product introduction.
See selection recommendations in chapter Sizing [▶ 7].

Product documentation

#	Topic	Title	Document ID
1	Datasheet	MVL702, Modulating refrigerant valve with magnetic actuator, PS50	This document
2	Datasheet	POL94M, Extension module: driver for magnetic refrigeration valve	A6V14947866
3	Mounting instructions	MVL702, Mounting instructions	A6V13983997

Notes

Engineering

For practical installation recommendations see Product documentation [► 10], #3.

Excessive pressure levels

The normally closed feature in combination with additional closing components can lead to high pressure build-up in closed sections of the piping.

Safety measures

Additional installation instructions may be required depending on the application and the piping system layout as well as appropriate safety measures (e.g. pressostats, full motor protection, pressure relief valve opening etc.).

Particle and dirt loads

Internal system cleanliness is essential for valve operation and reliability. On critical applications, we recommend installing a filter drier (100µm) upstream of the expansion valve. This is particularly true of field installations exposed to high levels of particles and dirt.

Flash gas

Subcooling must be sufficient to prevent the formation of flash gas in the liquid line. Select the lowest possible velocity of the refrigerant in the liquid pipe to prevent the formation of flash gas. A typical value in specialized literature is 1 m/s for liquid lines.

Ammonia

Not approved for use with ammonia (NH₃, R717).

Mounting and Installation

For practical installation recommendations see Product documentation [► 10], #3.

NOTICE



Qualified personnel to mount and commission the valve!

- General installation know-how of refrigerant systems is required.
- Only properly trained personnel may install the equipment.

Calibration

The valve must be calibrated before initial commissioning (see Product documentation [► 10], #2).

Avoid overheating when evacuating the valve

- **Notice:** actuator/driving coil is refrigerant cooled!
- **Therefore:** POL94M has a dedicated manual function "Vacuum (50% open)", see also Product documentation [► 10], #2.

⚠ CAUTION



Overheating of the actuator/driving coil during the evacuation process

Risk of damage to the actuator/driving coil

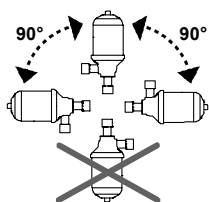
- Use manual function "Vacuum (50% open)" or make sure the valve is max. 50% or less opened during evacuation process.
- Do not insulate the valve before evacuation process.

Normally closed

The valve has a mechanical shut-off function and is normally closed (NC). The normally closed feature in combination with additional closing components can lead to excess pressure in closed sections of piping with refrigerant.

Always check for excess pressure when commissioning and maintaining the plant.

Valve mounting and disassembly



Secure the valve body using a pipe clamp on the valve head and a threaded rod to secure the valve body and to prevent critical vibration at the valve (see Product documentation [▶ 10], #3).

Align the pipe connections to prevent undue stress or vibration at/into the valve.

The refrigerant valves can be mounted upright to horizontal. Upright mounting is preferable.

Only disassemble the valve from **pressure-less** system piping!

Important notes on 'Connection cable with MVL702 valve connector plug'

- Connect only the MVL702 valve and the POL94M valve driver with the cable specified in "Accessories".
- The cable coming from the connector plug at a 90-degree angle must point in the direction of valve pipe connection A. MVL702.. mounting instructions contain a graphic with the correct connection direction.
- Do not over torque the cable nut / M12 valve connection (see Product documentation [▶ 10], #3).
- The connector plug is protection class IP67 when connected to the valve.
- Special care and handling required when connecting and disconnecting the cable if the valve is installed in a system containing a flammable refrigerant. Observe the following safety instructions!

⚠ CAUTION



Ignition of flammable air/refrigerant gas mixture

Connecting and disconnecting a live connection cable creates an ignition spark which can ignite a flammable gas mixture.

- Only connect the 'connection cable' in a de-energized state (POL94M is not connected at 24V/GND and disconnected from the mains).
- Uninstall the 'connection cable' only in a de-energized state (POL94M is not connected at 24V/GND and disconnected from the mains).

Longtime valve tightness

Ensure the valve is in the closed position before disconnecting the cable. Repeatedly disconnecting the cable in the open position can negatively impact sealing at the valve seat and shorten the life cycle of the valve.

Liquid and oil trap

Do not install the valve at the low point in the plant piping where liquid and/or oil can collect.

Soldering

Solder pipes with care. Use inert gas for solder to avoid dirt and the formation of scaling (oxide). See also Product documentation [▶ 10], #3 for practical tips.

CAUTION



Excessive solder can lead to the formation of solder beads within the pipe connections.

Risk of valve malfunction and other mechanical components!

- Chose the appropriate amount of solder.

CAUTION



Improper soldering can lead to overheating the valve body.

Risk of damage to the valve

- Direct the flame away from the valve when soldering.
- Cool the valve with a wet cloth to prevent overheating.

Water condensation

Insulate all cold surfaces on the valve body and piping to prevent condensation.

Mounting instructions

The valve is supplied with mounting instructions (see Product documentation [▶ 10], #3).

Maintenance and repair

Maintenance

The valve is maintenance free.

Repair

The valve cannot be repaired. Replace the entire unit.

Disposal



This symbol or any other national label indicate that this product, its packaging may not be disposed of as domestic waste. Dispose of the item(s) at separate collection and recycling facilities in accordance with local and national legislation.

For additional details, refer to [Siemens information on disposal](#).

Warranty

Comply with application-specific technical data.

Siemens rejects any and all liability in the event a valve is operated outside the specified limits.

Technical data

Dimensions and weight	
Dimensions	See Dimensions [► 18]
Weight	See Order data [► 5]

Electrical data		
Operating voltage (all types)	Driving coil (M1+: black / M1-: white)	DC 0...20 V via POL94M
Signal Inputs	Positioning sensor supply (S+: red / S-: blue)	< AC 5 V
Signal outputs	Position feedback signal (SIN: yellow)	< AC 5 V
Resistance	Driving coil (M1+: black / M1-: white) **	12.6 Ω* +/- 3 Ω
	Positioning sensor (S+: red / SIN: yellow)	59 Ω* +/- 5 Ω
	Positioning sensor (S-: blue / SIN: yellow)	59 Ω* +/- 5 Ω
	* Resistance at room temperature ** Resistance including 2m cable. Note: Driving coil with 4m cable: 12.7 Ω +/- 3 Ω Note: Driving coil with 8m cable: 12.9 Ω +/- 3 Ω	
Electrical connection	via M12 connector and connector cable POL0C...; see: Product documentation [► 10], #2.	

Power consumption for kvs = 0.1, 0.2 m³/h			
During calibration	P _{Cal}	28 W for 1 sec with t _{amb} = 0°C	
	Rule: Higher driving coil temperature leads to lower calibration power consumption.		
In Operation	P _{Max}	(A→AB): 13 W	(AB→A): 8 W
	Notes	<ul style="list-style-type: none"> For high fluid temperatures use connection AB. Applications with fluid temperatures above 70 °C at connection A available upon request. 	
Power consumption (based on new valves and clean systems)			
Valve opening	Δp [bar]	A: 39°C → AB: 0°C	AB: 39°C → A: 0°C
50%	5.5 *	5 W	4 W
100%	5.5 *	8 W	6 W
* Expansion operation with R1234ze(E), t ₀ /t _c = 0/40 °C, Δt _{cu} = 1 K			
Valve opening	Δp [bar]	A: 64°C → AB: 0°C	AB: 64°C → A: 0°C
50%	35.7 **	9 W	4 W
100%	35.7**	12 W	6 W
** Expansion operation with R32, t ₀ /t _c = 0/65°C, Δt _{cu} = 1K			

Power consumption for kvs = 0.4, 1.0 m ³ /h			
During calibration	P _{Cal}	28W for 1 sec with t _{amb} = 0°C	
	Rule: Higher driving coil temperature leads to lower calibration power consumption.		
In Operation	P _{Max}	(A→AB): 9 W	(AB→A): 11 W
	Notes	<ul style="list-style-type: none"> For high fluid temperatures use connection A. Applications with fluid temperatures above 70 °C at connection AB available upon request. 	
Power consumption (based on new valves and clean systems)			
Valve opening	Δp [bar]	A: 39°C → AB: 0°C	AB: 39°C → A: 0°C
50%	5.5 *	5 W	6 W
100%	5.5 *	7 W	8 W
* Expansion operation with R1234ze(E), t ₀ /t _c = 0/40 °C, Δt _{cu} = 1 K			
Power consumption (based on new valves and clean systems)			
Valve opening	Δp [bar]	A: 64°C → AB: 0°C	AB: 64°C → A: 0°C
50%	35.7 **	5 W	7 W
100%	35.7**	7 W	10 W
** Expansion operation with R32, t ₀ /t _c = 0/65°C, Δt _{cu} = 1K			

Power consumption for kvs = 2.9 m ³ /h			
During calibration	P _{Cal}	28W for 1 sec with t _{amb} = 0°C	
	Rule: Higher driving coil temperature leads to lower calibration power consumption.		
In Operation	P _{Max}	(A→AB): 11 W	(AB→A): 23 W
	Notes	<ul style="list-style-type: none"> For high fluid temperatures use connection A. Applications with fluid temperatures above 70 °C at connection AB available upon request. 	
Power consumption (based on new valves and clean systems)			
Valve opening	Δp [bar]	A: 39°C → AB: 0°C	AB: 39°C → A: 0°C
50%	5.5 *	6 W	7 W
100%	5.5 *	8 W	9 W
* Expansion operation with R1234ze(E), t ₀ /t _c = 0/40 °C, Δt _{cu} = 1 K			
Power consumption (based on new valves and clean systems)			
Valve opening	Δp [bar]	A: 64°C → AB: 0°C	AB: 64°C → A: 0°C
50%	35.7 **	7 W	15 W
100%	35.7**	9 W	20 W ***
** Expansion operation with R32, t ₀ /t _c = 0/65°C, Δt _{cu} = 1K		*** 20W based on limited valve opening of 80%	

Functional / mechanical data	
Max. permissible operating pressure MOP	5.0 MPa (50 bar)*
Max. differential pressure Δp_{\max}	A → AB: 3.6 MPa (36 bar)*, AB → A: 4.0 MPa (40 bar)*
	* for valve size $kvs=2.9 \text{ m}^3/\text{h}$ see "Type summary [▶ 4]"
Flow curve	Depending on flow direction, see "valve flow curves [▶ 7]"
Internal leakage rate (valid in any flow direction)	$k_{vs} = 0.1, 0.2 \text{ m}^3/\text{h}$: < 2 ml/min — gas at $\Delta p = 4 \text{ bar}$ $k_{vs} = 0.4...2.9 \text{ m}^3/\text{h}$: < 8 ml/min — gas at $\Delta p = 4 \text{ bar}$
	<ul style="list-style-type: none"> Shut/off function like solenoid valve normally closed (NC) Internal leakage rate like solenoid valve (NC) or better
External tightness	Hermetically sealed (completely laser welded, no static or dynamic seals). 100% of production is tightness tested.
Permissible fluid	R32**, R134a, R290**, R410A, R448A, R449A, R450A, R452A, R454B**, R454C**, R513A, R1234yf**, R1234ze(E)** and similar refrigerants. Notice: Not suitable for ammonia (NH ₃ , R717) !
** The manufacturer as well as the operator must comply with all legal requirements while handling with fluids belonging to fluid group 1.	
Fluid temperature: $k_{vs} = 0.1, 0.2 \text{ m}^3/\text{h}$	HFC/HFO application 50 bar (material compatibility): <ul style="list-style-type: none"> Connection A: -40...+110°C*** Connection AB: -40...+130°C
Fluid temperature: $k_{vs} = 0.4... 2.9 \text{ m}^3/\text{h}$	HFC/HFO application 50 bar (material compatibility): <ul style="list-style-type: none"> Connection A: -40...+130°C Connection AB: -40...+110°C***
*** Increased power consumption: Applications with fluid temperature greater than 70 °C available upon request. For power data, see sections 'Power consumption'.	
Stroke resolution /	1 : 1000
Mode of operation	Modulating
Positioning time	<ul style="list-style-type: none"> 1 sec for full opening for individual positioning speed settings, see POL94M data sheet
Positioning when de-energized	Valve is closed in less than 1 sec. Valve is closed and stays closed up to Δp_{\max} in both directions, A→AB and AB→A.
Orientation	Upright to horizontal, see: Mounting instructions
Materials	
Valve body	CrNi steel
Pipe connections	CrNi steel with copper plating

Conformity

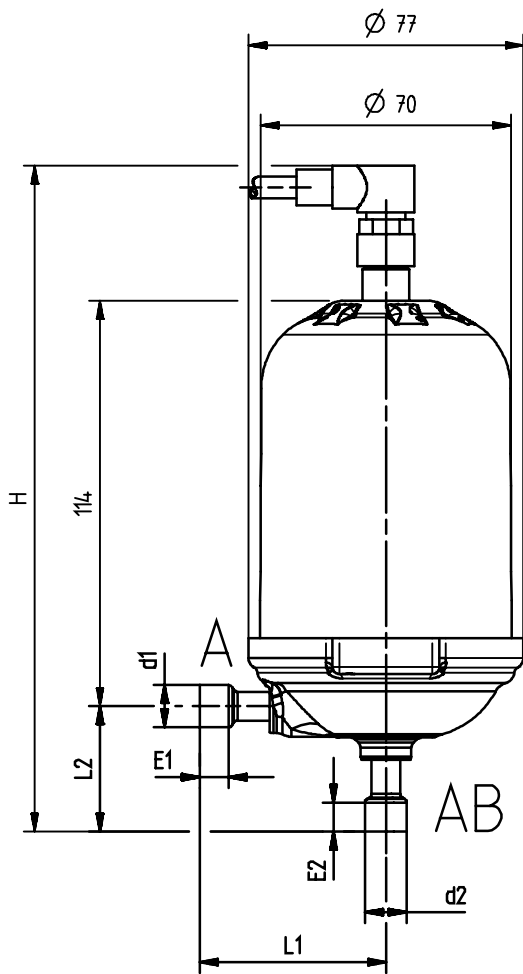
Protection class	
Degree of protection as per EN 60529	IP67 (M12 cable connection). The valve is hermetically sealed.
Degree of pollution as per EN 60730-1	2
Control class as per EN 60730-1	Class III

Ambient conditions	
Climatic ambient conditions	
Operation	as per EN IEC 60721-3-4
Class	4K23
Temperature	-40...70 °C
Air humidity	4..100 %
Transport	as per EN IEC 60721-3-2
Class	2K12
Temperature	-40...70 °C
Air humidity	4..100 %
Storage	as per EN IEC 60721-3-1
Class	1K23
Temperature	-40...70 °C
Air humidity	4..100 %
Mechanical ambient conditions (f.e. vibrations)	
Operation	as per EN IEC 60721-3-4
Class	4M11
Transport	as per EN IEC 60721-3-2
Class	2M4
Storage	as per EN IEC 60721-3-1
Class	1M11
Vibrations random broadband	Parameters analog to above standards. Method based on IEC/EN 60068-2-64

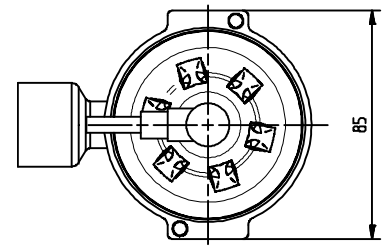
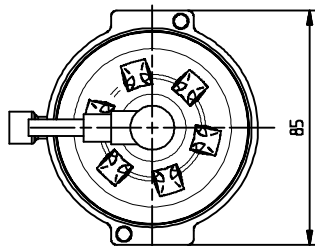
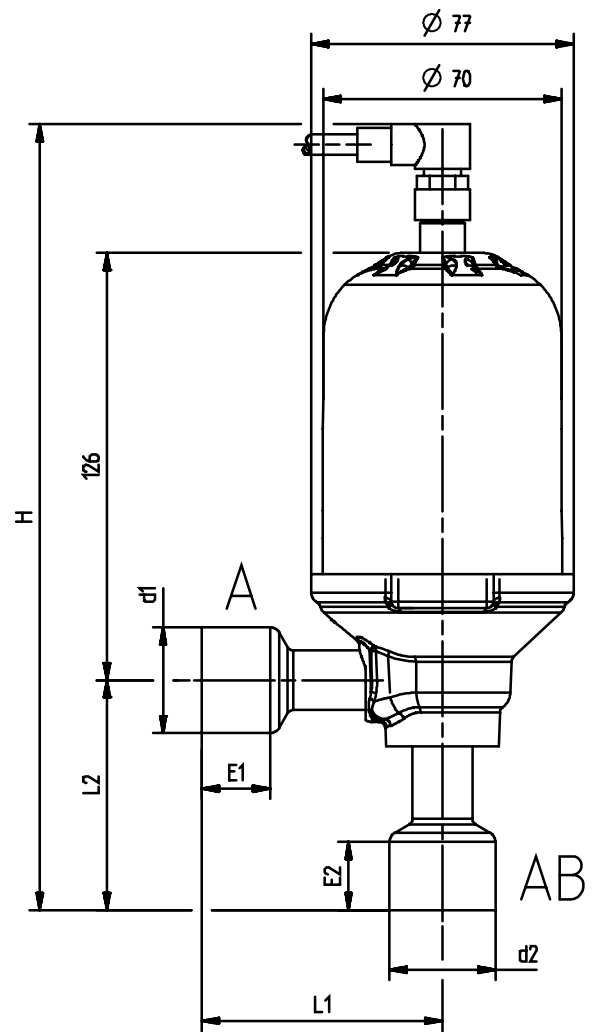
Standards, directives and approvals		
Product standard	EN ISO 21922	
Electromagnetic compatibility	EMC 2014/30/EU For residential, commercial and industrial environments	
Electrical safety	IEC 60730-1, IEC 60730-2-14	
EU conformity (CE)	A5W00761602A	
UK conformity (UKCA)	A5W00761603A	
Pressure equipment directive	PED 2014/68/EU (only valves of category I or higher are subject to PED) PED classification: <ul style="list-style-type: none"> • Scope: article 1, section 1 • Definition: article 2, section 6 	
PED category	Fluid group 2	MVL702.09-09-0.1...MVL702.29-29-2.9 SEP (sound engineering practice), article 4, section 3
	Fluid group 1	MVL702.09-09-0.1...MVL702.22-22-2.9 SEP (sound engineering practice), article 4, section 3 MVL702.22-22-2.9, MVL702.29-29-2.9 Category I and limited to PS = 34.4 bar, article 14, section 2a
<ul style="list-style-type: none"> • PED category are declared according to EN ISO 21922. • The MVL702 is considered as valve assembly according chapter H.6, example 2 		
Flammable refrigerants	<ul style="list-style-type: none"> • Conformity to IEC 60335-2-40:2022: limited to clause 22.116 and 22.117 • MVL702.. with max. surface temperature <200 °C: Usable for flammable refrigerants with auto ignition temperature >300 °C 	
Environmental compatibility	The product environmental declarations (A6V14925752_en, A6V13984015_en) contain data on environmentally compatible product design, RoHS compliance, materials composition, packaging, environmental benefit and disposal.	

Dimensions

Type1: kvs = 0.1, 0.2 m³/h



Type2: kvs = 0.4...2.9 m³/h



Type1	Pipe connections				Dimensions				
	[inch]		[mm]		[mm]				
	d1	d2	d1	d2	H	E1	E2	L1	L2
MVL702.09-09-0.1	3/8"	3/8"	-	-	186	8	8	52	35
MVL702.10-10-0.1	-	-	10	10	186	8	8	52	35
MVL702.09-09-0.2	3/8"	3/8"	-	-	186	8	8	52	35
MVL702.10-10-0.2	-	-	10	10	186	8	8	52	35

Type2	Pipe connections				Dimensions				
	[inch]		[mm]		[mm]				
	d1	d2	d1	d2	H	E1	E2	L1	L2
MVL702.13-13-0.4	1/2"	1/2"	-	-	204	12	12	43	45
MVL702.16-16-0.4	5/8"	5/8"	16	16	204	14	14	43	45
MVL702.16-16-1.0	5/8"	5/8"	16	16	204	14	14	43	45
MVL702.22-22-1.0	7/8"	7/8"	22	22	223	16	16	62	64
MVL702.22-22-2.9	7/8"	7/8"	22	22	223	16	16	62	64
MVL702.22-29-2.9	7/8"	1 1/8"	22	-	231	16	20	62	73
MVL702.29-29-2.9	1 1/8"	1 1/8"	-	-	231	20	20	71	73

Regulatory compliance information

European Union conformity

Contact for regulatory topics: (EU) Siemens AG, Berliner Ring 23, DE-76437 Rastatt

United Kingdom conformity assessed

Contact for regulatory topics: (GB) Siemens plc, Sir William Siemens House, Princess Road, Manchester, M20 2UR

Revision numbers

Type	Stock number	Valid from	Type	Stock number	Valid from
Single pack		revision number	Multi pack		revision number
MVL702.09-09-0.1	S55320-M131	A	MVL702.09-09M0.1	S55320-M140	A
MVL702.10-10-0.1	S55320-M116	A	MVL702.10-10M0.1	S55320-M141	A
MVL702.09-09-0.2	S55320-M132	A	MVL702.09-09M0.2	S55320-M142	A
MVL702.10-10-0.2	S55320-M117	A	MVL702.10-10M0.2	S55320-M143	A
MVL702.13-13-0.4	S55320-M118	A	MVL702.13-13M0.4	S55320-M144	A
MVL702.16-16-0.4	S55320-M119	A	MVL702.16-16M0.4	S55320-M145	A
MVL702.16-16-1.0	S55320-M120	A	MVL702.16-16M1.0	S55320-M146	A
MVL702.22-22-1.0	S55320-M121	A	MVL702.22-22M1.0	S55320-M147	A
MVL702.22-22-2.9	S55320-M122	A	MVL702.22-22M2.9	S55320-M148	A
MVL702.22-29-2.9	S55320-M123	A	MVL702.22-29M2.9	S55320-M149	A
MVL702.29-29-2.9	S55320-M124	A	MVL702.29-29M2.9	S55320-M150	A

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Document ID A6V14637862_en--_a
Edition 2024-06-14