MCV100 Series High-Performance Control Valves

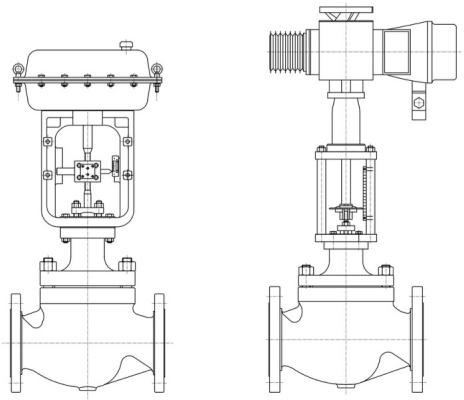
MCV-132 Multi-Stage Pressure-Reducing and Noise-Reducing Cage-Guided Control Valve

The MCV100 series high-performance control valve body features an advanced design, compact construction, high flow capacity and low pressure loss. The trim uses a standardized, modular design, allowing trim assemblies of different configurations and Cv values to be quickly combined, installed, removed or replaced to meet different fluid-control requirements under different service conditions and facilitates control-valve operation, in-line maintenance, function expansion and upgrades.

The MCV-132 multi-stage pressure-reducing and noise-reducing cage-guided control valve uses multi-stage pressure-reducing sleeves and pressure-balanced construction, with 2-6 sleeve layers. Its special trim design reduces noise and pressure under high-temperature, high-differential-pressure conditions. Seat shut-off performance complies with GB/T 4213-2008 and ASME B16.104-1998 and is suitable for medium- and large-size high-differential-pressure fluid control.

□ Pneumatic control valves are fitted with M8100 multi-spring pneumatic diaphragm actuators and M8200 pneumatic piston actuators, featuring compact size, low weight and high linear accuracy. are easy to install. A direct-acting actuator provides air-to-close; a reverse-acting actuator provides air-to-open.

□ Electric control valves are fitted with 2SA3 series electric actuators based on Siemens licensed technology. The F-2SB35 series accurately executes control commands, is an ideal drive for remote, centralized and automatic valve control, suitable for all types of regulating valves.



□ Main Sizes and Technical Specifications

● Nominal Size and Cv

Nominal Size (mm)		32			40			50			65			80			100		
Seat Diameter (mm)		15	25	32	25	32	40	32	40	50	40	50	65	50	65	80	65	80	100
Rated Cv	High Accuracy	6.3	10	17	10	17	24	17	24	44	24	44	68	44	68	99	68	99	175
	High Capacity	20			30			50			85			125			200		
Rated Stroke (mm)		25									40								

Nominal Size (mm)		125			150			200			250			300		
Seat Diameter (mm)		80	100	125	100	125	150	125	150	200	150	200	250	200	250	300
Rated Cv	High Accuracy	99	175	275	175	275	360	175	360	640	360	640	900	640	900	1240
	High Capacity	320			420			700			1000			1360		
Rated Stroke (mm)		50						75			100					

● Main Technical Specifications

Leakage Class	Class IV, V (optional), VI (soft seat) - GB/T 4213-2008 / ASME B16.104-1998
Flow Characteristic	Equal Percentage (%) Linear (L)
Rangeability	50:1, 75:1 (optional)
Pressure Class	PN16 25 40 63 100； ANSI Class 150 300 600
Flange Standard	GB/T 9113−2000 HG/T 20592−2009 HG/T 20615−2009(ASME B16.5−2009) JB/T 79−1994
Flange Facing	Raised Face (RF) Male-and-Female Face (MFM) Ring-Type Joint (RJ) Socket-Weld Connection (SW) BW

□ Valve Construction and Features

● Body Type: MCV100 series high-performance straight-through single-seat cast globe valve.

○ S-shaped streamlined flow passage provides low pressure loss and high flow capacity.

○ Face-to-face dimensions comply with IEC 60534-3-1-2001 and ASME B16.10-2009.

○ Accommodates installation of all MCV100 series trim configurations.

● Bonnet: separate bonnet, stud-bolted compression design.

○ Standard-temperature bonnet: -20°C to +230°C

○ Extended bonnet: -40°C to +350°C

○ Heat-dissipation bonnet: +350°C to +566°C

● Trim Type: two-stage or higher multi-stage pressure-reducing cage with pressure-balanced construction, combining multiple layers of multi-hole sleeves for staged pressure reduction to prevent flashing and cavitation.

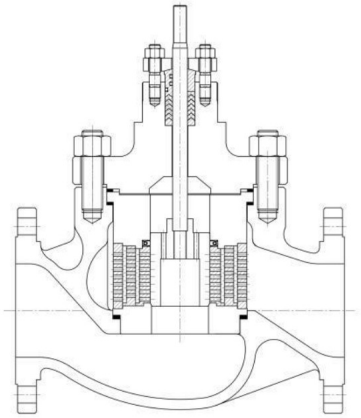
○ Sleeve-type seat provides high positioning accuracy and reliable sealing.

○ Cage directly clamps the seat, making assembly, maintenance and disassembly easy.

○ Metal seat is reliable and durable, with broad applicability and long service life.

○ The sleeve is hardened for durability; the fluid must be filtered to prevent blockage.

○ Pressure-balanced construction is suitable for high-differential-pressure fluid service without increasing actuator size.



Valve Construction Drawing

□ Allowable Differential Pressure

● Air-to-Close · Metal Seat · Flow-to-Open

Actuator	Supply Pressure (MPa)	Spring Range (MPa)	Allowable Differential Pressure (MPa)									
			Nominal Size (mm)									
			40	50	65	80	100	125	150	200	250	300
M812D	0.14	0.02–0.10	0.97	0.76	0.65	0.53	0.41	–	–	–	–	–
	0.28	0.04–0.20	4.82	3.73	3.23	2.69	2.04	–	–	–	–	–
	0.40	0.08–0.24	9.81	9.81	9.68	8.07	6.16	–	–	–	–	–
M813D	0.14	0.02–0.10	1.72	1.34	1.15	0.95	0.72	0.61	0.51	–	–	–
	0.28	0.04–0.20	8.53	6.57	5.69	4.78	3.63	2.98	2.56	–	–	–
	0.40	0.08–0.24	9.81	9.81	9.81	9.81	9.81	8.75	7.71	–	–	–
M814D	0.14	0.02–0.10	–	–	1.98	1.64	1.26	1.06	0.88	0.72	–	–
	0.28	0.04–0.20	–	–	9.81	8.23	6.24	5.32	4.41	3.63	–	–
	0.40	0.08–0.24	–	–	9.81	9.81	9.81	9.81	9.81	9.81	–	–
M815D	0.14	0.02–0.10	–	–	–	–	3.86	3.24	2.66	2.17	1.56	1.37
	0.28	0.04–0.20	–	–	–	–	9.81	9.58	7.82	6.38	4.60	3.14
	0.40	0.08–0.24	–	–	–	–	9.81	9.81	9.81	9.81	7.64	6.70
M826D	0.30	0.04–0.16	–	–	–	–	–	–	9.81	9.81	7.31	6.41
	0.40	0.08–0.20	–	–	–	–	–	–	9.81	9.81	9.81	9.33
	0.50	0.12–0.24	–	–	–	–	–	–	9.81	9.81	9.81	9.81

● Air-to-Open · Metal Seat · Flow-to-Open

Actuator	Supply Pressure (MPa)	Spring Range (MPa)	Allowable Differential Pressure (MPa)									
			Nominal Size (mm)									
			40	50	65	80	100	125	150	200	250	300
M812R	0.25	0.04–0.20	0.97	0.76	0.65	0.53	0.41	–	–	–	–	–
	0.3	0.08–0.24	4.82	3.73	3.23	2.69	2.04	–	–	–	–	–
	0.4	0.16–0.32	9.81	9.81	9.68	8.07	6.16	–	–	–	–	–
M813R	0.25	0.04–0.20	1.72	1.34	1.15	0.95	0.72	0.61	0.51	–	–	–
	0.3	0.08–0.24	8.53	6.57	5.69	4.78	3.63	2.98	2.56	–	–	–
	0.4	0.16–0.32	9.81	9.81	9.81	9.81	9.81	8.75	7.71	–	–	–
M814R	0.25	0.04–0.20	–	–	1.98	1.64	1.26	1.06	0.88	0.72	–	–
	0.3	0.08–0.24	–	–	9.81	8.23	6.24	5.32	4.41	3.63	–	–
	0.4	0.16–0.32	–	–	9.81	9.81	9.81	9.81	9.81	9.81	–	–
M815R	0.25	0.04–0.20	–	–	–	–	3.86	3.24	2.66	2.17	1.56	1.37
	0.3	0.08–0.24	–	–	–	–	9.81	9.58	7.82	6.38	4.60	3.14
	0.4	0.16–0.32	–	–	–	–	9.81	9.81	9.81	9.81	7.64	6.70
M826R	0.4	0.16–0.32	–	–	–	–	–	–	9.81	9.81	8.42	7.38
	0.5	0.20–0.40	–	–	–	–	–	–	9.81	9.81	9.81	9.33
	0.6	0.24–0.48	–	–	–	–	–	–	9.81	9.81	9.81	9.81

● F-2SB35 Series Electric Actuator · Metal Seat · Flow-to-Open

Actuator Model	Allowable Differential Pressure (MPa)									
	Nominal Size (mm)									
	40	50	65	80	100	125	150	200	250	300
F–2SB3510	10.0	9.80	8.33	10.0	–	–	–	–	–	–
F–2SB3511	–	–	10.0	10.0	10.0	6.04	5.03	4.11	–	–
F–2SB3512	–	–	–	–	–	–	10.0	8.22	5.97	4.86

● 361L Electric Actuator · Metal Seat · Flow-to-Open

Actuator Model	Allowable Differential Pressure (MPa)									
	Nominal Size (mm)									
	40	50	65	80	100	125	150	200	250	300
361LSA–08	0.42	0.34	0.26	–	–	–	–	–	–	–
361LSA–20	2.52	2.11	1.66	–	–	–	–	–	–	–
361LSB–30	4.52	3.79	2.99	1.66	1.39	1.08	–	–	–	–
361LSB–50	8.52	7.15	5.65	3.14	2.63	2.04	1.54	1.33	1.15	1.02
361LSC–65	–	9.67	7.65	4.25	3.56	2.76	2.08	1.80	1.56	1.38
361LSC–99	–	–	9.81	6.84	5.73	4.45	3.88	2.90	2.5	2.22
361LSC–160	–	–	–	9.81	9.45	7.35	6.07	4.78	4.13	3.65
361LSC–260	–	–	–	–	9.81	9.81	9.70	7.91	6.83	6.04

□ Face-to-Face Dimension L

mm

Nominal Size (mm)		40	50	65	80	100	125	150	200	250	300
L	ANSI150RF.PN16	222	254	276	298	352	403	451	543	673	737
	ANSI300RF.PN40	235	267	292	317	368	425	473	568	708	775
	ANSI600RF.PN63	251	286	311	337	394	457	508	610	752	819
	ANSI 150RJ	235	267	289	311	365	403	464	556	708	775
	ANSI 300RJ	248	283	308	333	384	425	489	584	724	791
	ANSI 600RJ	251	289	314	340	397	457	511	613	756	822
	ANSI150 SW BW	251	286	311	337	394	425	473	568	708	775
	ANSI300 600SW BW	251	286	311	337	394	457	508	610	752	819

□ Overall Dimensions

• Pneumatic Valve Overall Dimensions

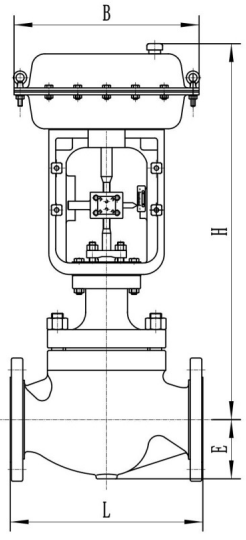
mm

Nominal Size mm	Actuator Model	H		B	E
		Standard-Temperature Type	Heat-Dissipation Type		
40	M812	537	697	267	80
	M813	586	746	350	80
50	M812	540	710	267	80
	M813	589	759	350	80
65	M813	677	857	350	88
	M814	817	997	470	88
80	M813	705	895	350	98
	M814	816	1006	470	98
100	M813	722	922	350	113
	M814	833	1033	470	113
125	M813	760	990	350	165
	M814	887	1117	470	165
150	M813	760	990	350	165
	M814	887	1117	470	165
200	M814	1022	1282	470	220
	M815	1165	1425	580	220
250	M815	1235	1525	580	320
	M826	1360	1650	550	320
300	M815	1245	1535	580	340
	M826	1370	1660	550	340

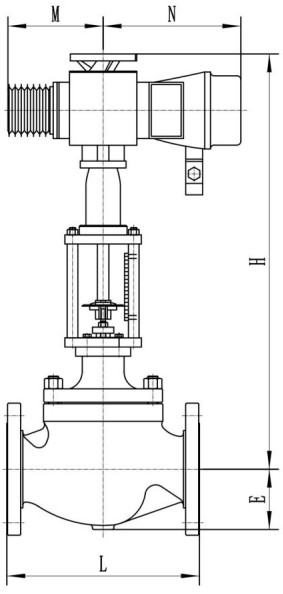
● Electric Valve Overall Dimensions

mm

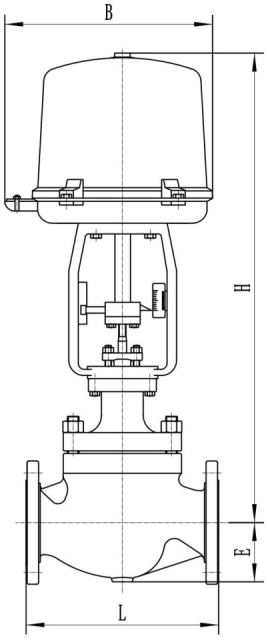
Nominal Size mm	E	IKML Type					361L Type			
		Actuator	H		M	N	Actuator	H		B
			Standard-Temperature Type	Heat-Dissipation Type				Standard-Temperature Type	Heat-Dissipation Type	
40	80	F-2SB3510	790	950	249	360	361LSA-20	565	725	225
50	80	F-2SB3510	795	965	249	360	361LSA-20	690	860	225
65	88	F-2SB3510	850	1030	249	360	361LSB-30	760	940	255
80	98	F-2SB3510	855	1045	249	360	361LSB-50	780	970	255
100	113	F-2SB3511	870	1070	249	360	361LSB-50	805	1005	255
125	165	F-2SB3511	910	1140	249	360	361LSC-65	1035	1265	310
150	165	F-2SB3511	915	1145	249	360	361LSC-65	1035	1265	310
200	220	F-2SB3511	1180	1410	249	360	361LSC-99	1135	1365	310
250	320	F-2SB3512	1240	1500	249	360	361LSC-160	1275	1535	310
300	340	F-2SB3512	1250	1510	249	360	361LSC-160	1285	1545	310



Outline Drawing with M810 Pneumatic Actuator



Outline Drawing with F-2SB35 Electric Actuator



Outline Drawing with 361L Electric Actuator

□ Complete Valve Weight

● Pneumatic Valve Weight

kg

Nominal Size (mm)	Actuator	PN16 ANSI150		PN40 ANSI300		PN63 ANSI600	
		Standard-Temperature Type	Heat-Dissipation Type	Standard-Temperature Type	Heat-Dissipation Type	Standard-Temperature Type	Heat-Dissipation Type
40	M812	31	34	36	39	44	47
	M813	43	46	48	51	56	59
50	M812	37	40	42	45	47	50
	M813	49	52	54	57	59	62
65	M813	55	59	60	64	77	81
	M814	86	90	91	95	108	112
80	M813	65	71	75	81	87	103
	M814	96	102	106	112	128	134
100	M813	75	85	90	100	125	135
	M814	106	116	121	131	156	166
125	M813	97	107	115	125	150	160
	M814	145	155	172	182	216	231
150	M813	157	172	187	202	237	252
	M814	188	203	218	233	243	268
200	M814	268	288	318	338	438	458
250	M815	422	457	477	512	620	650
300	M815	685	715	758	788	846	876

● Electric Valve Weight

kg

Nominal Size (mm)	Actuator	PN16 ANSI150		PN40 ANSI300		PN63 ANSI600	
		Standard-Temperature Type	Heat-Dissipation Type	Standard-Temperature Type	Heat-Dissipation Type	Standard-Temperature Type	Heat-Dissipation Type
40	F-2SB3510	66	69	71	74	79	82
	361LSA-20	28	31	33	36	41	44
50	F-2SB3510	72	75	77	80	82	85
	361LSA-20	34	37	39	42	44	47
65	F-2SB3510	79	83	84	88	101	105
	361LSB-50	46	50	51	55	68	72
80	F-2SB3510	89	95	99	105	121	127
	361LSB-50	56	62	66	72	88	94
100	F-2SB3511	99	109	114	124	149	159
	361LSB-50	66	76	81	91	116	126
125	F-2SB3511	129	139	156	166	239	254
	361LSB-50	96	106	123	133	206	221
150	F-2SB3511	182	197	212	227	262	277
	361LSC-65	182	197	212	227	262	277
200	F-2SB3511	257	277	307	327	427	447
	361LSC-99	257	277	307	327	427	447
250	F-2SB3512	416	440	465	505	610	635
	361LSC-99	416	440	465	505	610	635
300	F-2SB3512	653	688	730	770	868	898
	361LSC-160	653	688	730	770	868	898

□ Accessory Configuration

- Positioner
- Air Filter Regulator
- Limit Switch
- Volume Booster
- Solenoid Valve
- Valve Position Transmitter
- Lock-Up Valve
- Handwheel Operator

□ Selection and Ordering Information

Provide the following information when requesting selection assistance or ordering:

- Valve name and model
- Nominal size, seat size / flow coefficient Cv
- Pressure class, connection type and flange standard
- Body material, trim material and whether hardening treatment is required
- Plug type and flow characteristic
- Actuator type and supply pressure
- Electric actuator operating voltage and signal
- Required valve position upon signal failure or air-supply failure
- Medium name and properties; whether suspended solids or particles are present
- Medium density and temperature
- Normal, maximum and minimum flow rates
- Medium pressure; valve inlet and outlet pressures at fully open and fully closed positions
- Accessory requirements, signal and explosion-proof requirements
- Special requirements such as oil-free, copper-free and water-free construction
- Special inspection requirements, material inspection, NDE, etc.