Product Specifications

Model	D712MG					
Gas	Configurable					
Full scale	10 SCCM-10 SLM		5 SCCM-5 SLM		5 SCCM-1 SLM	
Operating inlet pressure	H:350-750 kPa(A) (Configurable)		M:240-450 kPa(A) (Configurable)		L:110-350 kPa(A) (Configurable)	
Operating differential pressure	≥ 350 kPa(D)		≥ 240 kPa(D)		≥ 110 kPa(D)	
Operating downstream pressure	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)
Control range	0.2-100 %F.S. for digital control 2-100 %F.S. for analog control	0.5-100 %F.S. for digital control 2-100 %F.S. for analog control	0.5-100 %F.S. for digital control 2-100 %F.S. for analog control	1-100 %F.S. for digital control 2-100 %F.S. for analog control	2-100 %F.S.	5-100 %F.S.
Flow rate accuracy at 25 ℃ *1 *2	±1 %S.P. (5-100 %F.S.) ±0.05 %F.S. (0.2-5 %F.S.) +±0.2 %F.S. for analog control	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.) +±0.2 %F.S. for analog control	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.) +±0.2 %F.S. for analog control	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.) +±0.2 %F.S. for analog control	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (2-50 %F.S.) +±0.2 %F.S. for analog control	±1 %F.S. (5-100 %F.S.) +±0.2 %F.S. for analog control
Temperature error from 25 ℃	±0.05 %S.P./℃ (5-100 %F.S.) ±0.0025 %F.S./℃ (0.2-5 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %S.P./℃ (20-100 %F.S.) ±0.01 %F.S./℃ (1-20 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %S.P./℃ (50-100 %F.S.) ±0.025 %F.S./℃ (2-50 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %F.S./℃ (5-100 %F.S.) +±0.01 %F.S./℃ for analog control
Offset/Span stability at 25℃ *3	±0.5 %F.S./year		±1 %F.S./year		±5 %F.S./year	
Repeatability	±0.3 %S.P. (5-100 %F.S.) ±0.015 %F.S. (0.2-5 %F.S.)	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (20-100 %F.S.) ±0.06 %F.S. (1-20 %F.S.)	±0.3 %S.P. (50-100 %F.S.) ±0.15 %F.S. (2-50 %F.S.)	±0.3 %F.S. (5-100 %F.S.)
Valve type	Normally closed/Piezo actuator					
Settling time for step up *4	≤ 100 msec for digital control , ≤ 300 msec for analog control					
Overshoot	±2 %S.P. or ±0.5 %F.S. whichever is larger					
Undershoot	±2 %S.P. or ±0.5 %F.S. whichever is larger					
Inlet pressure influence performance *5	±1 %S.P. (5-100 %F.S.) ±0.05 %F.S. (0.2-5 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (2-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Valve seat leak	< 0.02 %F.S. or 0.015 SCCM(N_2), whichever is larger		< 0.05 %F.S. or 0.015 SCCM(N_2), whichever is larger		< 0.1 %F.S. or 0.015 SCCM(N_2), whichever is larger	
Proof pressure	1000 kPa(A)					
Leak integrity	≤ 5×10^{-12} Pa·m^3/s(He)					
Wetted material	SUS316L, Ni-alloy, PFA					
Operating temperature	15-45 ℃					
Storage temperature	0-80 ℃					
Installation orientation	Attitude insensitive					
Inlet pressure accuracy	±10 kPa(0-1000 kPa(A)) for digital signal , ±17 kPa(0-700 kPa(A)) for analog signal					
Temperature accuracy	±1 ℃(15-45 ℃) for digital signal , ±1.5 ℃(15-45 ℃) for analog signal					
Warming up operation	≥ 30 minutes					
Control interface	RJ45 connector for digital control , D-Subminiature 9pin connector for analog control					
Power supply	+15 V ±5 % , 270 mA as maximum , -15 V ±5% , 255 mA as maximum					
Weight	1.0 kg					

*1 : Flow rate accuracy is traceable only down to 2 SCCM, hence actual gas accuracy not guaranteed below 2 SCCM.
*2 : Flow rate accuracy for Bin#103-10; for flow rate accuracy for Bin#101-102, please refer to the instruction manual.
*3 : This is guaranteed value under 25 ℃ and ≤ 1.0×10^{-3} Pa(A).
*4 : Setting time is MFC output signal and N_2 gas. Other detail definition follows setting time of "SEMI Standard E17-1011 Section 4.1.4" .
*5 : Pressure perturbation has to be smaller than 20 % pressure change per second and ±70 kPa/sec (±10 PSI/sec).

Model	D722MG			
Gas	Configurable			
Full scale	10-50 SLM	5-30 SLM	1-7.5 SLM	
Operating inlet pressure	H:350-750 kPa(A) (Configurable)	M:240-450 kPa(A) (Configurable)	L:110-350 kPa(A) (Configurable)	
Operating differential pressure	≥ 350 kPa(D)	≥ 240 kPa(D)	≥ 110 kPa(D)	
Operating downstream pressure	≤ 53.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)
Control range	0.5-100 %F.S. for digital control 2-100 %F.S. for analog control	1-100 %F.S. for digital control 2-100 %F.S. for analog control	5-100 %F.S.	
Flow rate accuracy at 25 ℃ *1	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.) +±0.2 %F.S. for analog control	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.) +±0.2 %F.S. for analog control	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (5-50 %F.S.) +±0.2 %F.S. for analog control	±1 %F.S. (5-100 %F.S.) +±0.2 %F.S. for analog control
Temperature error from 25 ℃	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %S.P./℃ (20-100 %F.S.) ±0.01 %F.S./℃ (1-20 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %S.P./℃ (50-100 %F.S.) ±0.025 %F.S./℃ (5-50 %F.S.) +±0.01 %F.S./℃ for analog control	±0.05 %F.S./℃ (5-100 %F.S.) +±0.01 %F.S./℃ for analog control
Offset/Span stability at 25℃ *2	±0.5 %F.S./year	±1 %F.S./year	±5 %F.S./year	
Repeatability *1	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (20-100 %F.S.) ±0.06 %F.S. (1-20 %F.S.)	±0.3 %S.P. (50-100 %F.S.) ±0.15 %F.S. (5-50 %F.S.)	±0.3 %F.S. (5-100 %F.S.)
Valve type	Normally closed/Piezo actuator			
Settling time for step up *3	≤ 200 msec for digital control , ≤ 300 msec for analog control			
Overshoot	±2 %S.P. or ±0.5 %F.S. whichever is larger			
Undershoot	±2 %S.P. or ±0.5 %F.S. whichever is larger			
Inlet pressure influence performance *4	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (5-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Valve seat leak	< 0.1 %F.S.	< 0.2 %F.S.	< 1 %F.S.	
Proof pressure	1000 kPa(A)			
Leak integrity	≤ 5×10^{-12} Pa·m^3/s(He)			
Wetted material	SUS316L, Ni-alloy, PFA			
Operating temperature	15-45 ℃			
Storage temperature	0-80 ℃			
Installation orientation	Attitude insensitive			
Inlet pressure accuracy	±10 kPa(0-1000 kPa(A)) for digital signal , ±17 kPa(0-700 kPa(A)) for analog signal			
Temperature accuracy	±1 ℃(15-45 ℃) for digital signal , ±1.5 ℃(15-45 ℃) for analog signal			
Warming up operation	≥ 30 minutes			
Control interface	RJ45 connector for digital control , D-Subminiature 9pin connector for analog control			
Power supply	+15 V ±5 % , 270 mA as maximum , -15 V ±5% , 255 mA as maximum			
Weight	1.0 kg			

*1 : Flow rate accuracy and repeatability of Bin#14-15 are guaranteed only for N_2 calibration gas.
*2 : This is guaranteed value under 25 ℃ and ≤ 1.0×10^{-3} Pa(A).
*3 : Setting time is MFC output signal and N_2 gas. Other detail definition follows setting time of "SEMI E17-1011 Section 4.1.4".
*4 : Pressure perturbation has to be smaller than 20 % pressure change per second and ±70 kPa/sec(±10 PSI/sec).

Model	D714MG					
Gas	Configurable					
Full scale	10 SCCM-10 SLM		5 SCCM-5 SLM		5 SCCM-1 SLM	
Operating inlet pressure	H:350-750 kPa(A) (Configurable)		M:240-450 kPa(A) (Configurable)		L:110-350 kPa(A) (Configurable)	
Operating differential pressure	≥ 350 kPa(D)		≥ 240 kPa(D)		≥ 110 kPa(D)	
Operating downstream pressure	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)
Control range	0.2-100 %F.S.	0.5-100 %F.S.	0.5-100 %F.S.	1-100 %F.S.	2-100 %F.S.	5-100 %F.S.
Flow rate accuracy at 25 ℃ *1 *2	±1 %S.P. (5-100 %F.S.) ±0.05 %F.S. (0.2-5 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (2-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Temperature error from 25 ℃	±0.05 %S.P./℃ (5-100 %F.S.) ±0.0025 %F.S./℃ (0.2-5 %F.S.)	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.)	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.)	±0.05 %S.P./℃ (20-100 %F.S.) ±0.01 %F.S./℃ (1-20 %F.S.)	±0.05 %S.P./℃ (50-100 %F.S.) ±0.025 %F.S./℃ (2-50 %F.S.)	±0.05 %F.S./℃ (5-100 %F.S.)
Offset/Span stability at 25℃ *3	±0.5 %F.S./year		±1 %F.S./year		±5 %F.S./year	
Repeatability	±0.3 %S.P. (5-100 %F.S.) ±0.015 %F.S. (0.2-5 %F.S.)	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (20-100 %F.S.) ±0.06 %F.S. (1-20 %F.S.)	±0.3 %S.P. (50-100 %F.S.) ±0.15 %F.S. (2-50 %F.S.)	±0.3 %F.S. (5-100 %F.S.)
Valve type	Normally closed/Piezo actuator					
Settling time for step up *4	≤ 100 msec					
Overshoot	±2 %S.P. or ±0.5 %F.S. whichever is larger					
Undershoot	±2 %S.P. or ±0.5 %F.S. whichever is larger					
Inlet pressure influence performance *5	±1 %S.P. (5-100 %F.S.) ±0.05 %F.S. (0.2-5 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (2-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Valve seat leak	< 0.02 %F.S. or 0.015 SCCM(N_2), whichever is larger		< 0.05 %F.S. or 0.015 SCCM(N_2), whichever is larger		< 0.1 %F.S. or 0.015 SCCM(N_2), whichever is larger	
Proof pressure	1000 kPa(A)					
Leak integrity	≤ 5×10^{-12} Pa·m^3/s(He)					
Wetted material	SUS316L, Ni-alloy, PFA					
Operating temperature	15-45 ℃					
Storage temperature	0-80 ℃					
Installation orientation	Attitude insensitive					
Inlet pressure accuracy	±10 kPa(0-1000 kPa(A))					
Temperature accuracy	±1 ℃(15-45 ℃)					
Warming up operation	≥ 30 minutes					
Control interface	M12 shield type micro connector , DeviceNet™ protocol *6					
Power supply	24 VDC , 7.4 VA , Applicable for ODVA standard					
Weight	1.0 kg					

*1：Flow rate accuracy is traceable only down to 2 SCCM, hence actual gas accuracy not guaranteed below 2 SCCM.
*2：Flow rate accuracy for Bin#103-10; for flow rate accuracy for Bin#101-102, please refer to the instruction manual.
*3：This is guaranteed value under 25 ℃ and ≤ 1.0×10^{-3} Pa(A).
*4：Setting time is MFC output signal and N_2 gas. Other detail definition follows setting time of "SEMI Standard E17-1011 Section 4.1.4" .
*5：Pressure perturbation has to be smaller than 20 % pressure change per second and ±70 kPa/sec (±10 PSI/sec).
*6：DeviceNet™ is trademark of Open DeviceNet Vendors Association.

Model	D724MG			
Gas	Configurable			
Full scale	10-50 SLM	5-30 SLM	1-7.5 SLM	
Operating inlet pressure	H:350-750 kPa(A) (Configurable)	M:240-450 kPa(A) (Configurable)	L:110-350 kPa(A) (Configurable)	
Operating differential pressure	≥ 350 kPa(D)	≥ 240 kPa(D)	≥ 110 kPa(D)	
Operating downstream pressure	≤ 53.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)
Control range	0.5-100 %F.S.	1-100 %F.S.	5-100 %F.S.	
Flow rate accuracy at 25 ℃ *1	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (5-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Temperature error from 25 ℃	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.)	±0.05 %S.P./℃ (20-100 %F.S.) ±0.01 %F.S./℃ (1-20 %F.S.)	±0.05 %S.P./℃ (50-100 %F.S.) ±0.025 %F.S./℃ (5-50 %F.S.)	±0.05 %F.S./℃ (5-100 %F.S.)
Offset/Span stability at 25℃ *2	±0.5 %F.S./year	±1 %F.S./year	±5 %F.S./year	
Repeatability *1	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (20-100 %F.S.) ±0.06 %F.S. (1-20 %F.S.)	±0.3 %S.P. (50-100 %F.S.) ±0.15 %F.S. (5-50 %F.S.)	±0.3 %F.S. (5-100 %F.S.)
Valve type	Normally closed/Piezo actuator			
Settling time for step up *3	≤ 200 msec			
Overshoot	±2 %S.P. or ±0.5 %F.S. whichever is larger			
Undershoot	±2 %S.P. or ±0.5 %F.S. whichever is larger			
Inlet pressure influence performance *4	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (5-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Valve seat leak	< 0.1 %F.S.	< 0.2 %F.S.	< 1 %F.S.	
Proof pressure	1000 kPa(A)			
Leak integrity	≤ 5×10^{-12} Pa·m^3/s(He)			
Wetted material	SUS316L, Ni-alloy, PFA			
Operating temperature	15-45 ℃			
Storage temperature	0-80 ℃			
Installation orientation	Attitude insensitive			
Inlet pressure accuracy	±10 kPa(0-1000 kPa(A))			
Temperature accuracy	±1 ℃(15-45 ℃)			
Warming up operation	≥ 30 minutes			
Control interface	M12 shield type micro connector , DeviceNet™ protocol *5			
Power supply	24 VDC , 7.4 VA , Applicable for ODVA standard			
Weight	1.0 kg			

*1：Flow rate accuracy and repeatability of Bin#14-15 are guaranteed only for N_2 calibration gas.
*2：This is guaranteed value under 25 ℃ and ≤ 1.0×10^{-3} Pa(A).
*3：Setting time is MFC output signal and N_2 gas. Other detail definition follows setting time of "SEMI E17-1011 Section 4.1.4".
*4：Pressure perturbation has to be smaller than 20 % pressure change per second and ±70 kPa/sec(±10 PSI/sec).
*5：DeviceNet™ is trademark of Open DeviceNet Vendors Association.

Model	D717MG					
Gas	Configurable					
Full scale	10 SCCM-10 SLM		5 SCCM-5 SLM		5 SCCM-1 SLM	
Operating inlet pressure	H:350-750 kPa(A) (Configurable)		M:240-450 kPa(A) (Configurable)		L:110-350 kPa(A) (Configurable)	
Operating differential pressure	≥ 350 kPa(D)		≥ 240 kPa(D)		≥ 110 kPa(D)	
Operating downstream pressure	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)
Control range	0.2-100 %F.S.	0.5-100 %F.S.	0.5-100 %F.S.	1-100 %F.S.	2-100 %F.S.	5-100 %F.S.
Flow rate accuracy at 25 ℃ *1 *2	±1 %S.P. (5-100 %F.S.) ±0.05 %F.S. (0.2-5 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (2-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Temperature error from 25 ℃	±0.05 %S.P./℃ (5-100 %F.S.) ±0.0025 %F.S./℃ (0.2-5 %F.S.)	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.)	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.)	±0.05 %S.P./℃ (20-100 %F.S.) ±0.01 %F.S./℃ (1-20 %F.S.)	±0.05 %S.P./℃ (50-100 %F.S.) ±0.025 %F.S./℃ (2-50 %F.S.)	±0.05 %F.S./℃ (5-100 %F.S.)
Offset/Span stability at 25℃ *3	±0.5 %F.S./year		±1 %F.S./year		±5 %F.S./year	
Repeatability	±0.3 %S.P. (5-100 %F.S.) ±0.015 %F.S. (0.2-5 %F.S.)	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (20-100 %F.S.) ±0.06 %F.S. (1-20 %F.S.)	±0.3 %S.P. (50-100 %F.S.) ±0.15 %F.S. (2-50 %F.S.)	±0.3 %F.S. (5-100 %F.S.)
Valve type	Normally closed/Piezo actuator					
Settling time for step up *4	≤ 100 msec					
Overshoot	±2 %S.P. or ±0.5 %F.S. whichever is larger					
Undershoot	±2 %S.P. or ±0.5 %F.S. whichever is larger					
Inlet pressure influence performance *5	±1 %S.P. (5-100 %F.S.) ±0.05 %F.S. (0.2-5 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (2-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Valve seat leak	< 0.02 %F.S. or 0.015 SCCM(N_2), whichever is larger		< 0.05 %F.S. or 0.015 SCCM(N_2), whichever is larger		< 0.1 %F.S. or 0.015 SCCM(N_2), whichever is larger	
Proof pressure	1000 kPa(A)					
Leak integrity	≤ 5×10^{-12} Pa·m^3/s(He)					
Wetted material	SUS316L, Ni-alloy, PFA					
Operating temperature	15-45 ℃					
Storage temperature	0-80 ℃					
Installation orientation	Attitude insensitive					
Inlet pressure accuracy	±10 kPa(0-1000 kPa(A))					
Temperature accuracy	±1 ℃(15-45 ℃)					
Warming up operation	≥ 30 minutes					
Control interface	RJ45 connector , EtherCAT® protocol *6					
Power supply	M8 5 pin male connector , 24 VDC±4 V , Instantaneous 9.6 W/Normal dissipation 7.0 W					
Weight	1.0 kg					

*1：Flow rate accuracy is traceable only down to 2 SCCM, hence actual gas accuracy not guaranteed below 2 SCCM.
*2：Flow rate accuracy for Bin#103-10; for flow rate accuracy for Bin#101-102, please refer to the instruction manual.
*3：This is guaranteed value under 25 ℃ and ≤ 1.0×10^{-3} Pa(A).
*4：Setting time is MFC output signal and N_2 gas. Other detail definition follows setting time of "SEMI Standard E17-1011 Section 4.1.4" .
*5：Pressure perturbation has to be smaller than 20 % pressure change per second and ±70 kPa/sec(±10 PSI/sec).
*6：EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH in Germany.

Model	D727MG			
Gas	Configurable			
Full scale	10-50 SLM	5-30 SLM	1-7.5 SLM	
Operating inlet pressure	H:350-750 kPa(A) (Configurable)	M:240-450 kPa(A) (Configurable)	L:110-350 kPa(A) (Configurable)	
Operating differential pressure	≥ 350 kPa(D)	≥ 240 kPa(D)	≥ 110 kPa(D)	
Operating downstream pressure	≤ 53.3 kPa(A)	≤ 53.3 kPa(A)	≤ 13.3 kPa(A)	≤ 53.3 kPa(A)
Control range	0.5-100 %F.S.	1-100 %F.S.	5-100 %F.S.	
Flow rate accuracy at 25 ℃ *1	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (5-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Temperature error from 25 ℃	±0.05 %S.P./℃ (10-100 %F.S.) ±0.005 %F.S./℃ (0.5-10 %F.S.)	±0.05 %S.P./℃ (20-100 %F.S.) ±0.01 %F.S./℃ (1-20 %F.S.)	±0.05 %S.P./℃ (50-100 %F.S.) ±0.025 %F.S./℃ (5-50 %F.S.)	±0.05 %F.S./℃ (5-100 %F.S.)
Offset/Span stability at 25℃ *2	±0.5 %F.S./year	±1 %F.S./year	±5 %F.S./year	
Repeatability *1	±0.3 %S.P. (10-100 %F.S.) ±0.03 %F.S. (0.5-10 %F.S.)	±0.3 %S.P. (20-100 %F.S.) ±0.06 %F.S. (1-20 %F.S.)	±0.3 %S.P. (50-100 %F.S.) ±0.15 %F.S. (5-50 %F.S.)	±0.3 %F.S. (5-100 %F.S.)
Valve type	Normally closed/Piezo actuator			
Settling time for step up *3	≤ 200 msec			
Overshoot	±2 %S.P. or ±0.5 %F.S. whichever is larger			
Undershoot	±2 %S.P. or ±0.5 %F.S. whichever is larger			
Inlet pressure influence performance *4	±1 %S.P. (10-100 %F.S.) ±0.1 %F.S. (0.5-10 %F.S.)	±1 %S.P. (20-100 %F.S.) ±0.2 %F.S. (1-20 %F.S.)	±1 %S.P. (50-100 %F.S.) ±0.5 %F.S. (5-50 %F.S.)	±1 %F.S. (5-100 %F.S.)
Valve seat leak	< 0.1 %F.S.	< 0.2 %F.S.	< 1 %F.S.	
Proof pressure	1000 kPa(A)			
Leak integrity	≤ 5×10^{-12} Pa·m^3/s(He)			
Wetted material	SUS316L, Ni-alloy, PFA			
Operating temperature	15-45 ℃			
Storage temperature	0-80 ℃			
Installation orientation	Attitude insensitive			
Inlet pressure accuracy	±10 kPa(0-1000 kPa(A))			
Temperature accuracy	±1 ℃(15～45 ℃)			
Warming up operation	≥ 30 minutes			
Control interface	RJ45 connector , EtherCAT® protocol *5			
Power supply	M8 5 pin male connector , 24 VDC±4 V , Instantaneous 9.6 W/Normal dissipation 7.0 W			
Weight	1.0 kg			

※1：Flow rate accuracy and repeatability of Bin#14-15 are guaranteed only for N_2 calibration gas.
※2：This is guaranteed value under 25 ℃ and ≤ 1.0×10^{-3} Pa(A).
※3：Setting time is MFC output signal and N_2 gas. Other detail definition follows setting time of "SEMI E17-1011 Section 4.1.4".
※4：Pressure perturbation has to be smaller than 20 % pressure change per second and ±70 kPa/sec(±10 PSI/sec).
※5：EtherCAT® is a registered trademark and patented technology, licensed by Beckhoff Automation GmbH in Germany.