



GILSON PIPETTE SPECIFICATIONS

SYSTEMATIC ERROR = ACCURACY
RANDOM ERROR = REPEATABILITY

Maximum Errors Tolerated by Norm ISO 8655 and Gilson Specifications

ISO 8655 gives the technical specifications that must be respected by a pipette at the level of the nominal volume only, whereas Gilson gives tolerances fitted to all volumes. To guarantee optimum performance of its pipettes, Gilson has specifications that are much stricter than the ISO 8655 norm.

The performance of your pipette is defined for both the minimum and nominal volumes. Gilson strictly applies the methodology imposed by the norm but has different specifications as a function of the selected volume for a given model, contrary to the norm which specifies the same error, whatever volume is selected.

The norm is the result of a compromise reached by the members of the ISO technical committee. Gilson evaluated the maximum tolerated errors and considered that the maximum tolerated errors were not strict enough to guarantee the performance levels required by these precision instruments, especially for applications in the domains of research, diagnostics, and quality control. For this reason a note was added to **paragraph 9.4 of the final version of the ISO 8655-2 norm** and should be taken into account: *“It is recognized that the errors of measurement of intermediate volumes in the useful volume range of a variable-volume piston pipette may be considerably better than those specified for the nominal volume of the piston pipette.”*

Thus, a pipette may conform to the ISO 8655 norm but not to conform to Gilson specifications. Therefore, we are not able to guarantee that a pipette performs in accordance with the tolerances given in ISO 8655 and, by extension, the coherence of our user’s experimental results.

As a consequence we strongly recommend to have PIPETMAN®, PIPETMAN® L, MyPIPETMAN®, PIPETMAN® M, PIPETMAN® M Connected, MICROMAN® E, PLATEMASTER®, DISTRIMAN®, and DISPENSMAN® adjusted according to Gilson specifications. In this document, you’ll find tables comparing Gilson specifications with ISO 8655 so that you can take into account the loss of performance of your pipette if you estimate that you only need conformity with the norm ISO 8655.

If further clarification is needed, please reach out to your local Gilson representative.

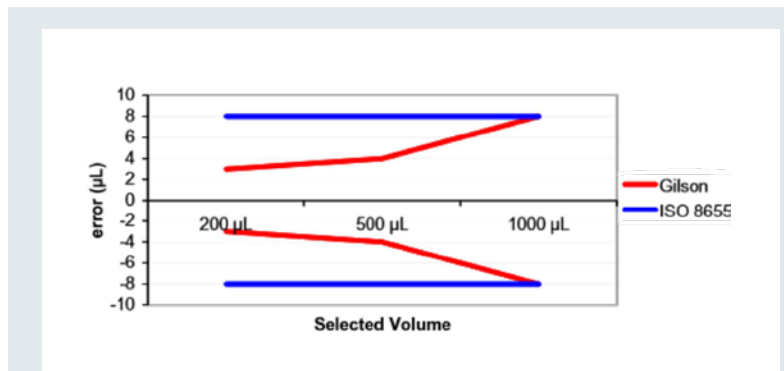


Figure 1









Maximum permissible errors - comparison of ISO 8655 and Gilson specifications

PIPETMAN P1000 has a systematic error of 3 µL at its minimum volume and 8 µL at its maximum (nominal) volume. ISO 8655 specifies a systematic error of 8 µL for a 1000 µL pipette regardless of the selected volume. This means that in the course of an experimental protocol comprising of 20 samples of 200 µL, the maximum error according to Gilson specifications will be 60 µL and 160 µL according to ISO 8655, a difference of 100 µL. To illustrate the above proposition we have included a graph showing the comparison between the maximum errors tolerated by Gilson and ISO 8655.










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PIPETMAN® M & PIPETMAN® M CONNECTED SINGLE CHANNEL

Model	PIPETMAN® DIAMOND Tips		Part Number	Nominal Volume (µL)	Volume Range	Gilson Specifications						ISO 8655-2 (Table 1)					
						Standard PIPET Mode						REPETITIVE Mode					
						Vol. (µL)	Vol. (%)	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Volume Range	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	
 P10M	D10 DL10	DF10ST DFL10ST	F81040	10	0.5-10 µL	0.5	5.0	± 0.040	≤ 0.013	± 8.0	≤ 2.6	0.5-10 µL	N/A	N/A	N/A	N/A	
						1	10	± 0.025	≤ 0.012	± 2.5	≤ 1.2		± 0.120	≤ 0.080	± 1.2	≤ 8.0	
						5	50	± 0.060	≤ 0.020	± 1.2	≤ 0.4		± 0.120	≤ 0.080	± 2.4	≤ 1.6	
						10	100	± 0.080	≤ 0.025	± 0.8	≤ 0.25		± 0.120	≤ 0.080	± 1.2	≤ 0.8	
 P20M	D200	DF30ST	F81041	20	2-20 µL	2	10	± 0.075	≤ 0.025	± 3.75	≤ 1.25	2-20 µL	± 0.20	≤ 0.100	± 10	≤ 5.0	
						10	50	± 0.10	≤ 0.035	± 1.0	≤ 0.35		± 0.20	≤ 0.100	± 2.0	≤ 1.0	
						20	100	± 0.15	≤ 0.050	± 0.75	≤ 0.25		± 0.20	≤ 0.100	± 1.0	≤ 0.5	
 P100M	D200	DF100ST	F81042	100	5-100 µL	5	5.0	± 0.35	≤ 0.10	± 7.0	≤ 2.0	5-100 µL	N/A	N/A	N/A	N/A	
						10	10	± 0.30	≤ 0.10	± 3.0	≤ 1.0		± 0.80	≤ 0.300	± 8.0	≤ 3.0	
						50	50	± 0.38	≤ 0.12	± 0.76	≤ 0.24		± 0.80	≤ 0.300	± 1.6	≤ 0.60	
						100	100	± 0.40	≤ 0.15	± 0.4	≤ 0.15		± 0.80	≤ 0.300	± 0.80	± 0.30	
 P200M	D200 D300	DF200ST DF300ST	F81043	200	20-200 µL	20	10	± 0.40	≤ 0.15	± 2.0	≤ 0.75	5-200 µL	± 1.60	≤ 0.600	± 8.0	≤ 3.0	
						100	50	± 0.80	≤ 0.22	± 0.8	≤ 0.22		± 1.60	≤ 0.600	± 1.6	≤ 0.60	
						200	100	± 1.00	≤ 0.26	± 0.5	≤ 0.13		± 1.60	≤ 0.600	± 0.80	± 0.30	
						20	30	± 0.70	≤ 0.20	± 2.333	≤ 0.667		± 2.4	≤ 0.9	± 8.0	≤ 3.0	
 P300M	D200 D300	DF200ST DF300ST	F81044	300	20-300 µL	150	50	± 0.90	≤ 0.23	± 0.6	≤ 0.153	10-300 µL	± 2.4	≤ 0.9	± 1.6	≤ 0.60	
						300	100	± 1.05	≤ 0.30	± 0.35	≤ 0.1		± 2.4	≤ 0.9	± 0.80	± 0.30	
						100	8.3	± 2.5	≤ 0.4	± 2.5	≤ 0.4		N/A	± 9.6	N/A	± 8.00	N/A
						120	10	± 2.4	≤ 0.4	± 2.0	≤ 0.33		N/A	± 9.6	N/A	± 1.60	± 0.6
 P1200M	D1000 D1200	DF1000ST DF1200ST	F81045	1200	100-1200 µL	600	50	± 3.6	≤ 0.8	± 0.6	≤ 0.13	20-1200 µL	± 9.6	≤ 3.6	± 1.60	± 0.6	
						1200	100	± 6.0	≤ 1.2	± 0.5	≤ 0.1		± 9.6	≤ 3.6	± 0.80	± 0.30	
						500	10	± 10	≤ 2	± 2.0	≤ 0.4		± 40.0	≤ 15.0	± 8.0	≤ 3.0	
						2500	50	± 15	≤ 4	± 0.6	≤ 0.16		± 40.0	≤ 15.0	± 1.6	± 0.60	
 P5000M	D5000	F81046	5000	500-5000 µL	5000	100	± 25	≤ 7	± 0.5	≤ 0.14	100-5000 µL	± 40.0	≤ 15.0	± 8.0	≤ 3.0		
					2500	50	± 15	≤ 4	± 0.6	≤ 0.16		± 40.0	≤ 15.0	± 1.6	± 0.60		
					5000	100	± 25	≤ 7	± 0.5	≤ 0.14		± 40.0	≤ 15.0	± 0.80	± 0.30		
 P10mLM	D10mL	F81047	10000	1-10 mL	1000	10	± 25	≤ 4	± 2.5	≤ 0.4	200µL-10mL	± 60.0	≤ 30.0	± 6.0	≤ 3.0		
					5000	50	± 30	≤ 8	± 0.6	≤ 0.16		± 60.0	≤ 30.0	± 1.2	± 0.60		
					10000	100	± 50	≤ 12	± 0.5	≤ 0.12		± 60.0	≤ 30.0	± 0.60	± 0.30		

PIPETMAN® M & PIPETMAN® M CONNECTED MULTICHANNEL

Model	PIPETMAN® DIAMOND Tips		Part Number	Nominal Volume (µL)	Volume Range	Gilson Specifications						ISO 8655-2 (Table 2)					
						Standard PIPET Mode						REPETITIVE Mode					
						Vol. (µL)	Vol. (%)	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Volume Range	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	
 P8x10M	D10 DL10	DF10ST DFL10ST	F81048	10	0.5-10 µL	0.5	5.0	± 0.05	≤ 0.02	± 10.0	4.0	0.5-10 µL	N/A	N/A	N/A	N/A	
						1	10	± 0.04	≤ 0.02	± 4.0	2.0		± 0.24	≤ 0.16	± 2.4	1 ≤ 6	
						5	50	± 0.08	≤ 0.04	± 1.6	0.8		± 0.24	≤ 0.16	± 4.8	≤ 3.2	
 P12x10M	D10 D200	DFL10ST DF30ST	F81049	10	0.5-10 µL	10	100	± 0.1	≤ 0.06	± 1.0	0.6	0.5-10 µL	± 0.24	≤ 0.16	± 2.4	≤ 1.6	
						1	5.0	± 0.08	≤ 0.05	± 8.0	± 5.0		± 0.40	≤ 0.20	N/A	N/A	N/A
						2	10	± 0.09	≤ 0.06	± 4.5	± 3.0		± 0.40	≤ 0.20	± 2.0	± 4.0	± 1.0
 P8x20M	DL10 D200	DFL10ST DF30ST	F81050	20	1-20 µL	10	50	± 0.15	≤ 0.10	± 1.5	± 1.0	1-20 µL	± 0.40	≤ 0.20	± 4.0	± 1.0	
						20	100	± 0.25	≤ 0.12	± 1.25	± 0.6		± 0.40	≤ 0.20	± 2.0	± 1.0	
						1	5.0	± 0.08	≤ 0.05	± 8.0	± 5.0		± 0.40	≤ 0.20	N/A	N/A	N/A
 P12x20M	D200	DF100ST	F81051	20	1-20 µL	20	100	± 0.25	≤ 0.12	± 1.25	± 0.6	1-20 µL	± 0.40	≤ 0.20	± 4.0	± 1.0	
						10	50	± 0.15	≤ 0.10	± 1.5	± 1.0		± 0.40	≤ 0.20	± 2.0	± 1.0	
						10	10	± 0.25	≤ 0.14	± 2.5	± 1.4		± 1.60	≤ 0.60	± 1.6	± 3.2	± 0.60
 P8x100M	D200	DF100ST	F81052	100	10-100 µL	50	50	± 0.50	≤ 0.20	± 1.0	± 0.4	5-100 µL	± 1.60	≤ 0.60	± 1.6	± 3.2	
						100	100	± 0.80	≤ 0.25	± 0.8	± 0.25		± 1.60	≤ 0.60	± 1.6	± 0.60	
						10	10	± 0.25	≤ 0.14	± 2.5	± 1.4		± 1.60	≤ 0.60	± 1.6	± 3.2	± 0.60
 P12x100M	D200 D300	DF100ST DF200ST DF300ST	F81053	100	10-100 µL	20	100	± 0.50	≤ 0.20	± 1.0	± 0.8	5-200 µL	± 3.20	≤ 1.20	± 1.6	± 3.2	
						100	50	± 1.00	≤ 0.30	± 1.0	± 0.5		± 3.20	≤ 1.20	± 1.6	± 1.6	
						200	100	± 2.00	≤ 0.50	± 1.0	± 0.25		± 3.20	≤ 1.20	± 1.6	± 1.6	
 P8x200M	D200 D300	DF100ST DF200ST DF300ST	F81054	200	20-200 µL	20	10	± 0.50	≤ 0.16	± 2.5	± 0.8	5-200 µL	± 3.20	≤ 1.20	± 1.6	± 3.2	
						100	50	± 1.00	≤ 0.30	± 1.0	± 0.5		± 3.20	≤ 1.20	± 1.6	± 1.6	
						200	100	± 2.00	≤ 0.50	± 1.0	± 0.25		± 3.20	≤ 1.20	± 1.6	± 1.6	
 P8x300M	D200 D300	DF200ST DF300ST	F81055	300	10-300 µL	10	3.3	± 1.00	≤ 0.18	± 10.0	± 1.8	10-300 µL	N/A	N/A	N/A	N/A	
						30	10	± 1.00	≤ 0.18	± 3.33	± 0.6		± 4.8	≤ 1.8	± 1.6	± 3.2	± 0.60
						150	50	± 1.50	≤ 0.375	± 1.0	± 0.25		± 4.8	≤ 1.8	± 1.6	± 3.2	± 0.60
 P12x300M	D200 D300	DF200ST DF300ST	F81056	300	10-300 µL	300	100	± 2.40	≤ 0.45	± 0.8	± 0.15	10-300 µL	± 4.8	≤ 1.8	± 1.6	± 3.2	
						10	3.3	± 1.00	≤ 0.18	± 10.0	± 1.8		± 4.8	≤ 1.8	± 1.6	± 3.2	± 0.60
						30	10	± 1.00	≤ 0.18	± 3.33	± 0.6		± 4.8	≤ 1.8	± 1.6	± 3.2	± 0.60
P8x1200M	D1200	DF1200ST	F81057	1200	50-1200 µL	50	4.2	± 4.0	≤ 0.7	± 8.0	± 1.4	50-1200 µL	N/A	N/A	N/A	N/A	
						120	10	± 4.0	≤ 0.7	± 3.33	± 0.58		± 19.2	≤ 7.2	± 1.6	± 3.20	± 0.60
						600	50	± 6.0	≤ 1.5	± 1.0	± 0.25		± 19.2	≤ 7.2	± 1.6	± 1.6	
P12x1200M	D1200	DF1200ST	F81058	1200	50-1200 µL	1200	100	± 9.6	≤ 1.8	± 0.8	± 0.15	50-1200 µL	± 19.2	≤ 7.2	± 1.6	± 3.20	
						50	4.2	± 4.0	≤ 0.7	± 8.0	± 1.4		± 19.2	≤ 7.2	± 1.6	± 3.20	± 0.60
						600	50	± 6.0	≤ 1.5	± 1.0	± 0.25		± 19.2	≤ 7.2	± 1.6	± 1.6	

*CV means Coefficient of Variation (%)

Gilson maximum permissible errors are guaranteed only when PIPETMAN® pipettes are used with the recommended PIPETMAN® DIAMOND Tips.

Under these conditions, Gilson volumetric specifications in standard pipetting (PIPET Mode) are guaranteed with a performance exceeding ISO 8655-2 recommendations for this Mode. In the absence of ISO recommendations for repetitive pipetting Mode for air displacement pipettes, Gilson volumetric specifications for repetitive pipetting (REPETITIVE Mode) are guaranteed within ISO 8655-2 recommendations for standard pipetting (Cf. ISO 8655-2 table 1).



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MyPIPETMAN® SINGLE CHANNEL													
Model	PIPETMAN® DIAMOND Tips		Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
						Gilson				ISO 8655-2 (Table 1)			
						Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
MyPIPETMAN P2	D10 DL10	DF10ST DFL10ST	2	0.2	10	± 0.024	≤ 0.012	± 12.0	≤ 6.0	± 0.050	≤ 0.040	± 25	≤ 20
				0.5	25	± 0.025	≤ 0.012	± 5.0	≤ 2.4	± 0.050	≤ 0.040	± 10	≤ 8
				1	50	± 0.025	≤ 0.012	± 2.5	≤ 1.2	± 0.050	≤ 0.040	± 5.0	≤ 4.0
				2	100	± 0.030	≤ 0.014	± 1.5	≤ 0.7	± 0.050	≤ 0.040	± 2.5	≤ 2.0
MyPIPETMAN P10	D10 DL10	DF10ST DFL10ST	10	1	10	± 0.025	≤ 0.012	± 2.5	≤ 1.2	± 0.120	≤ 0.080	± 12	≤ 8.0
				5	50	± 0.075	≤ 0.030	± 1.5	≤ 0.6	± 0.120	≤ 0.080	± 2.4	≤ 1.6
				10	100	± 0.100	≤ 0.040	± 1.0	≤ 0.4	± 0.120	≤ 0.080	± 1.2	≤ 0.8
MyPIPETMAN P20	D200	DF30ST	20	2	10	± 0.10	≤ 0.030	± 5.0	≤ 1.5	± 0.20	≤ 0.100	± 10	≤ 5.0
				10	50	± 0.10	≤ 0.050	± 1.0	≤ 0.5	± 0.20	≤ 0.100	± 2.0	≤ 1.0
				20	100	± 0.20	≤ 0.060	± 1.0	≤ 0.3	± 0.20	≤ 0.100	± 1.0	≤ 0.5
MyPIPETMAN P100	D200	DF100ST	100	10	10	± 0.35	≤ 0.10	± 3.5	≤ 1.0	± 0.80	≤ 0.300	± 8.0	≤ 3.0
				50	50	± 0.40	≤ 0.12	± 0.8	≤ 0.24	± 0.80	≤ 0.300	± 1.6	≤ 0.60
				100	100	± 0.80	≤ 0.15	± 0.8	≤ 0.15	± 0.80	≤ 0.300	± 0.80	≤ 0.30
MyPIPETMAN P200	D200 D300	DF200ST DF300ST	200	20	10	± 0.50	≤ 0.20	± 2.5	≤ 1.0	± 1.60	≤ 0.600	± 8.0	≤ 3.0
				100	50	± 0.80	≤ 0.25	± 0.8	≤ 0.25	± 1.60	≤ 0.600	± 1.6	≤ 0.60
MyPIPETMAN P1000	D1000 D1200	DF1000ST DF1200ST	1000	100	10	± 3.0	≤ 0.6	± 3.0	≤ 0.6	± 8.0	≤ 3.0	± 8.0	≤ 3.0
				500	50	± 4.0	≤ 1.0	± 0.8	≤ 0.2	± 8.0	≤ 3.0	± 1.6	≤ 0.60
				1000	100	± 8.0	≤ 1.5	± 0.8	≤ 0.15	± 8.0	≤ 3.0	± 0.80	≤ 0.30
MyPIPETMAN P5000	D5000		5000	500	10	± 12	≤ 3	± 2.4	≤ 0.6	± 40.0	≤ 15.0	± 8.0	≤ 3.0
				2500	50	± 15	≤ 5	± 0.6	≤ 0.2	± 40.0	≤ 15.0	± 1.6	≤ 0.60
				5000	100	± 30	≤ 8	± 0.6	≤ 0.16	± 40.0	≤ 15.0	± 0.80	≤ 0.30
MyPIPETMAN P10mL	D10mL		10000	1000	10	± 30	≤ 6	± 3.0	≤ 0.6	± 60.0	≤ 30.0	± 6.0	≤ 3.0
				5000	50	± 40	≤ 10	± 0.8	≤ 0.2	± 60.0	≤ 30.0	± 1.2	≤ 0.60
				10000	100	± 60	≤ 16	± 0.6	≤ 0.16	± 60.0	≤ 30.0	± 0.60	≤ 0.30

MyPIPETMAN® MULTICHANNEL													
Model	PIPETMAN® DIAMOND Tips		Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
						Gilson				ISO 8655-2 (Table 2)			
						Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
MyPIPETMAN P8x10	D10 DL10	DF10ST DFL10ST	10	0.5	5.0	± 0.08	≤ 0.04	± 16.0	≤ 8.0	N/A	N/A	N/A	N/A
				10	10	± 0.08	≤ 0.05	± 8.0	≤ 5.0	± 0.24	≤ 0.16	± 24	≤ 16
MyPIPETMAN P12x10	D10 DL10	DF10ST DFL10ST	10	5	50	± 0.20	≤ 0.10	± 4.0	≤ 2.0	± 0.24	≤ 0.16	± 4.8	≤ 3.2
				10	100	± 0.20	≤ 0.10	± 2.0	≤ 1.0	± 0.24	≤ 0.16	± 2.4	≤ 1.6
MyPIPETMAN P8x20	DL10 D200	DFL10ST DF30ST	20	2	10	± 0.10	≤ 0.08	± 5.0	≤ 4.0	± 0.40	≤ 0.20	± 20	≤ 10
				10	50	± 0.20	≤ 0.10	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 4.0	≤ 2.0
MyPIPETMAN P12x20	D200	DF30ST	20	20	100	± 0.40	≤ 0.20	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 2.0	≤ 1.0
				100	100	± 0.40	≤ 0.20	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 2.0	≤ 1.0
MyPIPETMAN P8x200	D200 D300	DF200ST DF300ST	200	20	10	± 0.50	≤ 0.25	± 2.5	≤ 1.25	± 3.20	≤ 1.20	± 16	≤ 6.0
				100	50	± 1.00	≤ 0.40	± 1.0	≤ 0.40	± 3.20	≤ 1.20	± 3.2	≤ 1.2
MyPIPETMAN P12x200	D300	DF300ST	200	200	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	≤ 0.60
				100	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	≤ 0.60
MyPIPETMAN P8x300	D200 D300	DF200ST DF300ST	300	20	6.7	± 1.00	≤ 0.35	± 5.0	≤ 1.75	N/A	N/A	N/A	N/A
				30	10	± 1.00	≤ 0.35	± 3.33	≤ 1.17	± 4.8	≤ 1.8	± 16	≤ 6.0
MyPIPETMAN P12x300	D300	DF300ST	300	150	50	± 1.50	≤ 0.60	± 1.0	≤ 0.4	± 4.8	≤ 1.8	± 3.2	≤ 1.2
				300	100	± 3.00	≤ 1.00	± 1.0	≤ 0.33	± 4.8	≤ 1.8	± 1.6	≤ 0.60

*CV means Coefficient of Variation (%)
Gilson maximum permissible errors are guaranteed only when PIPETMAN® pipettes are used with the recommended PIPETMAN® DIAMOND Tips.

NOTE The data given in this table conform to the ISO 8655-2 standard. With a precise pipetting technique, the P2 model can be used to aspirate volumes as low as 0.1 µL and the P10 model as low as 0.5 µL.



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PIPETMAN® L SINGLE CHANNEL—VARIABLE VOLUME

Model	PIPETMAN® DIAMOND Tips		Part Number		Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
								Gilson				ISO 8655-2 (Table 1)			
								Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
P2L	D10 DL10	DF10ST DFL10ST	FA10001M	FA10001P	2	0.2	10	± 0.024	≤ 0.012	± 12.0	≤ 6.0	± 0.050	≤ 0.040	± 25	≤ 20
						0.5	25	± 0.025	≤ 0.012	± 5.0	≤ 2.4	± 0.050	≤ 0.040	± 10	≤ 8
						1	50	± 0.027	≤ 0.013	± 2.7	≤ 1.3	± 0.050	≤ 0.040	± 5.0	≤ 4.0
						2	100	± 0.030	≤ 0.014	± 1.5	≤ 0.7	± 0.050	≤ 0.040	± 2.5	≤ 2.0
P10L	D10 DL10	DF10ST DFL10ST	FA10002M	FA10002P	10	0.5	5	± 0.040	≤ 0.016	± 8.0	≤ 3.2	N/A	N/A	N/A	N/A
						1	10	± 0.025	≤ 0.012	± 2.5	≤ 1.2	± 0.120	≤ 0.080	± 12	≤ 8.0
						5	50	± 0.075	≤ 0.030	± 1.5	≤ 0.6	± 0.120	≤ 0.080	± 2.4	≤ 1.6
						10	100	± 0.100	≤ 0.040	± 1.0	≤ 0.4	± 0.120	≤ 0.080	± 1.2	≤ 0.8
P20L	D200	DF30ST	FA10003M	FA10003P	20	2	10	± 0.10	≤ 0.030	± 5.0	≤ 1.5	± 0.20	≤ 0.100	± 10	≤ 5.0
						10	50	± 0.10	≤ 0.050	± 1.0	≤ 0.5	± 0.20	≤ 0.100	± 2.0	≤ 1.0
						20	100	± 0.20	≤ 0.060	± 1.0	≤ 0.3	± 0.20	≤ 0.100	± 1.0	≤ 0.5
P100L	D200	DF100ST	FA10004M	FA10004P	100	10	10	± 0.35	≤ 0.10	± 3.5	≤ 1.0	± 0.80	≤ 0.300	± 8.0	≤ 3.0
						50	50	± 0.40	≤ 0.12	± 0.8	≤ 0.24	± 0.80	≤ 0.300	± 1.6	≤ 0.60
						100	100	± 0.80	≤ 0.15	± 0.8	≤ 0.15	± 0.80	≤ 0.300	± 0.80	± 0.30
P200L	D200 D300	DF200ST DF300ST	FA10005M	FA10005P	200	20	10	± 0.50	≤ 0.20	± 2.5	≤ 1.0	± 1.60	≤ 0.600	± 8.0	≤ 3.0
						100	50	± 0.80	≤ 0.25	± 0.8	≤ 0.25	± 1.60	≤ 0.600	± 1.6	≤ 0.60
						200	100	± 1.60	≤ 0.30	± 0.8	≤ 0.15	± 1.60	≤ 0.600	± 0.80	± 0.30
P1000L	D1000 D1200	DF1000ST DF1200ST	FA10006M	FA10006P	1000	100	10	± 3.0	≤ 0.6	± 3.0	≤ 0.6	± 8.0	≤ 3.0	± 8.0	≤ 3.0
						500	50	± 4.0	≤ 1.0	± 0.8	≤ 0.2	± 8.0	≤ 3.0	± 1.6	± 0.60
						1000	100	± 8.0	≤ 1.5	± 0.8	≤ 0.15	± 8.0	≤ 3.0	± 0.80	± 0.30
P5000L	D5000		FA10007		5000	500	10	± 12	≤ 3	± 2.4	≤ 0.6	± 40.0	≤ 15.0	± 8.0	≤ 3.0
						2500	50	± 15	≤ 5	± 0.6	≤ 0.2	± 40.0	≤ 15.0	± 1.6	± 0.60
						5000	100	± 30	≤ 8	± 0.6	≤ 0.16	± 40.0	≤ 15.0	± 0.80	± 0.30
P10mLL	D10mL		FA10008		10000	1000	10	± 30	≤ 6	± 3.0	≤ 0.6	± 60.0	≤ 30.0	± 6.0	≤ 3.0
						5000	50	± 40	≤ 10	± 0.8	≤ 0.2	± 60.0	≤ 30.0	± 1.2	± 0.60
						10000	100	± 60	≤ 16	± 0.6	≤ 0.16	± 60.0	≤ 30.0	± 0.60	± 0.30

PIPETMAN® L MULTICHANNEL

Model	PIPETMAN® DIAMOND Tips		Part Number		Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
								Gilson				ISO 8655-2 (Table 2)			
								Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
P8x10L	D10 DL10	DF10ST DFL10ST	FA10013		10	0.5	5.0	± 0.08	≤ 0.04	± 16.0	≤ 8.0	N/A	N/A	N/A	N/A
						1	10	± 0.08	≤ 0.05	± 8.0	≤ 5.0	± 0.24	≤ 0.16	± 2.4	± 1.6
						5	50	± 0.20	≤ 0.10	± 4.0	≤ 2.0	± 0.24	≤ 0.16	± 4.8	± 3.2
P12x10L			FA10014		10	10	100	± 0.20	≤ 0.10	± 2.0	≤ 1.0	± 0.24	≤ 0.16	± 2.4	± 1.6
						5	50	± 0.20	≤ 0.10	± 4.0	≤ 2.0	± 0.24	≤ 0.16	± 4.8	± 3.2
						10	100	± 0.20	≤ 0.10	± 2.0	≤ 1.0	± 0.24	≤ 0.16	± 2.4	± 1.6
P8x20L	DL10 D200	DFL10ST DF30ST	FA10009		20	2	10	± 0.10	≤ 0.08	± 5.0	≤ 4.0	± 0.40	≤ 0.20	± 2.0	± 1.0
						10	50	± 0.20	≤ 0.10	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 4.0	± 2.0
						20	100	± 0.40	≤ 0.20	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 2.0	± 1.0
P12x20L			FA10010		20	10	100	± 0.40	≤ 0.20	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 2.0	± 1.0
						5	50	± 0.40	≤ 0.20	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 2.0	± 1.0
						10	100	± 0.40	≤ 0.20	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 2.0	± 1.0
P8x200L	D200 D300	DF200ST DF300ST	FA10011		200	20	10	± 0.50	≤ 0.25	± 2.5	≤ 1.25	± 3.20	≤ 1.20	± 1.6	≤ 6.0
						100	50	± 1.00	≤ 0.40	± 1.0	≤ 0.4	± 3.20	≤ 1.20	± 3.2	± 1.2
						200	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	± 0.60
P12x200L			FA10012		200	100	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	± 0.60
						50	50	± 1.00	≤ 0.40	± 1.0	≤ 0.4	± 3.20	≤ 1.20	± 3.2	± 1.2
						200	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	± 0.60
P8x200LVR	D200 D300	DF200ST DF300ST	FA10035		200	20	10	± 0.50	≤ 0.25	± 2.5	≤ 1.25	± 3.20	≤ 1.20	± 1.6	≤ 6.0
						100	50	± 1.00	≤ 0.40	± 1.0	≤ 0.4	± 3.20	≤ 1.20	± 3.2	± 1.2
						200	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	± 0.60
P12x200LVR			FA10036		200	100	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	± 0.60
						50	50	± 1.00	≤ 0.40	± 1.0	≤ 0.4	± 3.20	≤ 1.20	± 3.2	± 1.2
						200	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	± 0.60
P8x300L	D200 D300	DF200ST DF300ST	FA10015		300	20	6.7	± 1.00	≤ 0.35	± 5.0	≤ 1.75	N/A	N/A	N/A	N/A
						30	10	± 1.00	≤ 0.35	± 3.33	≤ 1.17	± 4.8	≤ 1.8	± 1.6	± 6.0
						150	50	± 1.50	≤ 0.60	± 1.0	≤ 0.4	± 4.8	≤ 1.8	± 3.2	± 1.2
P12x300L			FA10016		300	300	100	± 3.00	≤ 1.00	± 1.0	≤ 0.33	± 4.8	≤ 1.8	± 1.6	± 0.60
						150	50	± 1.50	≤ 0.60	± 1.0	≤ 0.4	± 4.8	≤ 1.8	± 3.2	± 1.2
						300	100	± 3.00	≤ 1.00	± 1.0	≤ 0.33	± 4.8	≤ 1.8	± 1.6	± 0.60
P8x300LVR	D200 D300	DF200ST DF300ST	FA10037		300	20	6.7	± 1.00	≤ 0.35	± 5.0	≤ 1.75	N/A	N/A	N/A	N/A
						30	10	± 1.00	≤ 0.35	± 3.33	≤ 1.17	± 4.8	≤ 1.8	± 1.6	± 6.0
						150	50	± 1.50	≤ 0.60	± 1.0	≤ 0.4	± 4.8	≤ 1.8	± 3.2	± 1.2
P12x300LVR			FA10038		300	300	100	± 3.00	≤ 1.00	± 1.0	≤ 0.33	± 4.8	≤ 1.8	± 1.6	± 0.60
						150	50	± 1.50	≤ 0.60	± 1.0	≤ 0.4	± 4.8	≤ 1.8	± 3.2	± 1.2
						300	100	± 3.00	≤ 1.00	± 1.0	≤ 0.33	± 4.8	≤ 1.8	± 1.6	± 0.60
P8x1200L	D1200	DF1200ST	FA10039		1200	100	8.33	± 6.0	≤ 0.9	± 6.0	≤ 0.9	N/A	N/A	N/A	N/A
						120	10	± 6.0	≤ 0.9	± 5.0	≤ 0.75	± 19.2	≤ 7.2	± 1.6	± 6.0
						600	50	± 8.0	≤ 1.2	± 1.33	≤ 0.2	± 19.2	≤ 7.2	± 3.2	± 1.2
P12x1200L			FA10040		1200	1200	100	± 10.0	≤ 1.5	± 0.83	≤ 0.13	± 19.2	≤ 7.2	± 1.6	± 0.60
						600	50	± 8.0	≤ 1.2	± 1.33	≤ 0.2	± 19.2	≤ 7.2	± 3.2	± 1.2
						1200	100	± 10.0	≤ 1.5	± 0.83	≤ 0.13	± 19.2	≤ 7.2	± 1.6	± 0.60

*CV means Coefficient of Variation (%)

Gilson maximum permissible errors are guaranteed only when PIPETMAN® pipettes are used with the recommended PIPETMAN® DIAMOND Tips.

For a pipette with a plastic tip ejector, the part number ends with the letter P.

For a pipette with a stainless steel tip ejector, the part number ends with the letter M.

P5000L and P10mLL are equipped with plastic tip ejectors.



GILSON PIPETTE SPECIFICATIONS

SYSTEMATIC ERROR = ACCURACY
RANDOM ERROR = REPEATABILITY









PIPETMAN® L FIXED VOLUME														
Model	PIPETMAN® DIAMOND Tips		Part Number	Nominal Volume (µL)	Volume (µL)	Volume (%)	Gilson				ISO 8655-2 (Table 1)			
							Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
F1L	D10 DL10	DF10ST DFL10ST	FA10017	1	1	100	± 0.020	≤ 0.015	± 2.0	≤ 1.5	± 0.025	≤ 0.020	± 2.5	≤ 2.0
F2L	D10 DL10	DF10ST DFL10ST	FA10018	2	2	100	± 0.050	≤ 0.020	± 2.5	≤ 1.0	± 0.050	≤ 0.040	± 2.5	≤ 2.0
F5L	D10 DL10	DF10ST DFL10ST	FA10019	5	5	100	± 0.050	≤ 0.025	± 1.0	≤ 0.5	± 0.125	≤ 0.075	± 2.5	≤ 1.5
F10L	D10 DL10	DF10ST DFL10ST	FA10020	10	10	100	± 0.060	≤ 0.030	± 0.6	≤ 0.3	± 0.120	≤ 0.080	± 1.2	≤ 0.8
F20L	D200	DF30ST	FA10021	20	20	100	± 0.10	≤ 0.050	± 0.5	≤ 0.25	± 0.20	≤ 0.100	± 1.0	≤ 0.5
F25L	D200	DF30ST	FA10022	25	25	100	± 0.20	≤ 0.070	± 0.8	≤ 0.28	± 0.25	≤ 0.125	± 1.0	≤ 0.5
F50L	D200	DF100ST	FA10023	50	50	100	± 0.35	≤ 0.120	± 0.7	≤ 0.24	± 0.50	≤ 0.250	± 1.0	≤ 0.5
F100L	D200	DF100ST	FA10024	100	100	100	± 0.55	≤ 0.15	± 0.6	≤ 0.15	± 0.80	≤ 0.300	± 0.80	≤ 0.30
F200L	D200	DF200ST	FA10025	200	200	100	± 1.2	≤ 0.30	± 0.6	≤ 0.15	± 1.60	≤ 0.600	± 0.80	≤ 0.30
F250L	D300	DF300ST	FA10026	250	250	100	± 1.5	≤ 0.75	± 0.6	≤ 0.30	± 2.0	≤ 0.75	± 0.80	≤ 0.30
F300L	D1000	DF1000ST	FA10027	300	300	100	± 2.40	≤ 0.50	± 0.8	≤ 0.17	± 2.4	≤ 0.9	± 0.80	≤ 0.30
F400L	D1000	DF1000ST	FA10028	400	400	100	± 2.40	≤ 0.80	± 0.6	≤ 0.2	± 3.2	≤ 1.2	± 0.80	≤ 0.30
F500L	D1000	DF1000ST	FA10029	500	500	100	± 3.00	≤ 0.80	± 0.6	≤ 0.16	± 4.0	≤ 1.5	± 0.80	≤ 0.30
F1000L	D1000	DF1000ST	FA10030	1000	1000	100	± 5.0	≤ 1.3	± 0.5	≤ 0.13	± 8.0	≤ 3.0	± 0.80	≤ 0.30
F5000L	D5000		FA10031	5000	5000	100	± 20	≤ 7	± 0.4	≤ 0.14	± 40.0	≤ 15.0	± 0.80	≤ 0.30





*CV means Coefficient of Variation (%)



GILSON PIPETTE SPECIFICATIONS

SYSTEMATIC ERROR = ACCURACY
RANDOM ERROR = REPEATABILITY

PIPETMAN® SINGLE CHANNEL														
Model	PIPETMAN® DIAMOND Tips		Part Number	Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
							Gilson				ISO 8655-2 (Table 1)			
							Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
 P2	D10 DL10	DF10ST DFL10ST	F144054M	2	0.2	10	± 0.024	≤ 0.012	± 12.0	≤ 6.0	± 0.050	≤ 0.040	± 25	≤ 20
					0.5	25	± 0.025	≤ 0.012	± 5.0	≤ 2.4	± 0.050	≤ 0.040	± 10	≤ 8
					1	50	± 0.025	≤ 0.012	± 2.5	≤ 1.2	± 0.050	≤ 0.040	± 5.0	≤ 4.0
					2	100	± 0.030	≤ 0.014	± 1.5	≤ 0.7	± 0.050	≤ 0.040	± 2.5	≤ 2.0
 P10**	D10 DL10	DF10ST DFL10ST	F144055M	10	1	10	± 0.025	≤ 0.012	± 2.5	≤ 1.2	± 0.120	≤ 0.080	± 12	≤ 8.0
					5	50	± 0.075	≤ 0.030	± 1.5	≤ 0.6	± 0.120	≤ 0.080	± 2.4	≤ 1.6
					10	100	± 0.100	≤ 0.040	± 1.0	≤ 0.4	± 0.120	≤ 0.080	± 1.2	≤ 0.8
 P20	D200	DF30ST	F144056M	20	2	10	± 0.10	≤ 0.030	± 5.0	≤ 1.5	± 0.20	≤ 0.100	± 10	≤ 5.0
					5	25	± 0.10	≤ 0.040	± 2.0	≤ 0.8	± 0.20	≤ 0.100	± 4.0	≤ 2.0
					10	50	± 0.10	≤ 0.050	± 1.0	≤ 0.5	± 0.20	≤ 0.100	± 2.0	≤ 1.0
					20	100	± 0.20	≤ 0.060	± 1.0	≤ 0.3	± 0.20	≤ 0.100	± 1.0	≤ 0.5
 P100	D200	DF100ST	F144057M	100	10	10	± 0.35	≤ 0.10	± 3.5	≤ 1.0	± 0.80	≤ 0.300	± 8.0	≤ 3.0
					50	50	± 0.40	≤ 0.12	± 0.8	≤ 0.24	± 0.80	≤ 0.300	± 1.6	≤ 0.60
					100	100	± 0.80	≤ 0.15	± 0.8	≤ 0.15	± 0.80	≤ 0.300	± 0.80	≤ 0.30
 P200	D200 D300	DF200ST DF300ST	F144058M	200	20	10	± 0.50	≤ 0.20	± 2.5	≤ 1.0	± 1.60	≤ 0.600	± 8.0	≤ 3.0
					100	50	± 0.80	≤ 0.25	± 0.8	≤ 0.25	± 1.60	≤ 0.600	± 1.6	≤ 0.60
					200	100	± 1.60	≤ 0.30	± 0.8	≤ 0.15	± 1.60	≤ 0.600	± 0.80	≤ 0.30
 P1000	D1000 D1200	DF1000ST DF1200ST	F144059M	1000	100	10	± 3.0	≤ 0.6	± 3.0	≤ 0.6	± 8.0	≤ 3.0	± 8.0	≤ 3.0
					500	50	± 4.0	≤ 1.0	± 0.8	≤ 0.2	± 8.0	≤ 3.0	± 1.6	≤ 0.60
					1000	100	± 8.0	≤ 1.5	± 0.8	≤ 0.15	± 8.0	≤ 3.0	± 0.80	≤ 0.30
 P5000***	D5000		F144066	5000	500	10	± 12	≤ 3	± 2.4	≤ 0.6	± 40.0	≤ 15.0	± 8.0	≤ 3.0
					2500	50	± 15	≤ 5	± 0.6	≤ 0.2	± 40.0	≤ 15.0	± 1.6	≤ 0.60
					5000	100	± 30	≤ 8	± 0.6	≤ 0.16	± 40.0	≤ 15.0	± 0.80	≤ 0.30
 P10mL***	D10mL		F144067	10000	1000	10	± 30	≤ 6	± 3.0	≤ 0.6	± 60.0	≤ 30.0	± 6.0	≤ 3.0
					5000	50	± 40	≤ 10	± 0.8	≤ 0.2	± 60.0	≤ 30.0	± 1.2	≤ 0.60
					10000	100	± 60	≤ 16	± 0.6	≤ 0.16	± 60.0	≤ 30.0	± 0.60	≤ 0.30

PIPETMAN® MULTICHANNEL														
Model	PIPETMAN® DIAMOND Tips		Part Number	Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
							Gilson				ISO 8655-2 (Table 2)			
							Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
 P8x10	D10 DL10	DF10ST DFL10ST	F144068	10	1	10	± 0.08	≤ 0.05	± 8.0	≤ 5.0	± 0.24	≤ 0.16	± 24	≤ 16
					5	50	± 0.20	≤ 0.10	± 4.0	≤ 2.0	± 0.24	≤ 0.16	± 4.8	≤ 3.2
P12x10			F144069		100	100	± 0.20	≤ 0.10	± 2.0	≤ 1.0	± 0.24	≤ 0.16	± 2.4	≤ 1.6
 P8x20	DL10 D200	DFL10ST DF30ST	F144070	20	2	10	± 0.10	≤ 0.08	± 5.0	≤ 4.0	± 0.40	≤ 0.20	± 20	≤ 10
					10	50	± 0.20	≤ 0.10	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 4.0	≤ 2.0
P12x20			F144071		20	100	± 0.40	≤ 0.20	± 2.0	≤ 1.0	± 0.40	≤ 0.20	± 2.0	≤ 1.0
 P8x200	D200 D300	DF200ST DF300ST	F144072	200	20	10	± 0.50	≤ 0.25	± 2.5	≤ 1.25	± 3.20	≤ 1.20	± 16	≤ 6.0
					100	50	± 1.00	≤ 0.40	± 1.0	≤ 0.40	± 3.20	≤ 1.20	± 3.2	≤ 1.2
P12x200			F144073		200	100	± 2.00	≤ 0.50	± 1.0	≤ 0.25	± 3.20	≤ 1.20	± 1.6	≤ 0.60
 P8x300	D200 D300	DF200ST DF300ST	F144074	300	30	10	± 1.00	≤ 0.35	± 3.33	≤ 1.17	± 4.8	≤ 1.8	± 16	≤ 6.0
					150	50	± 1.50	≤ 0.60	± 1.0	≤ 0.4	± 4.8	≤ 1.8	± 3.2	≤ 1.2
P12x300			F144075		300	100	± 3.00	≤ 1.00	± 1.0	≤ 0.33	± 4.8	≤ 1.8	± 1.6	≤ 0.60

*CV means Coefficient of Variation (%)

Gilson maximum permissible errors are guaranteed only when PIPETMAN® pipettes are used with the recommended PIPETMAN® DIAMOND Tips.







**P10 model can be used up to 0.5 µL.

***P5000 and P10mL do not have tip ejectors.



GILSON PIPETTE SPECIFICATIONS

SYSTEMATIC ERROR = ACCURACY
RANDOM ERROR = REPEATABILITY

MICROMAN® E													
Model	Capillary Piston	Part Number	Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
						Gilson				ISO 8655-2 (Table 3)			
						Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
 M10E	CP10 CP10ST	FD10001	10	1 5 10	10 50 100	± 0.090 ± 0.100 ± 0.150	≤ 0.030 ≤ 0.030 ≤ 0.060	± 9.0 ± 2.0 ± 1.5	≤ 3.00 ≤ 0.60 ≤ 0.60	± 0.200 ± 0.200 ± 0.200	≤ 0.100 ≤ 0.100 ≤ 0.100	± 20 ± 4.0 ± 2.0	≤ 10 ≤ 2.0 ≤ 1.0
 M25E	CP25 CP25ST	FD10002	25	3 10 25	12.0 40.0 100	± 0.25 ± 0.27 ± 0.30	≤ 0.080 ≤ 0.080 ≤ 0.100	± 8.3 ± 2.7 ± 1.2	≤ 2.67 ≤ 0.80 ≤ 0.40	± 0.35 ± 0.35 ± 0.35	≤ 0.15 ≤ 0.15 ≤ 0.15	± 11.67 ± 3.5 ± 1.4	≤ 5.0 ≤ 1.5 ≤ 0.60
 M50E	CP50 CP50ST	FD10003	50	20 50	40.0 100	± 0.34 ± 0.70	≤ 0.20 ≤ 0.30	± 1.7 ± 1.4	≤ 1.00 ≤ 0.60	± 0.70 ± 0.70	≤ 0.30 ≤ 0.30	± 3.5 ± 1.4	≤ 1.5 ≤ 0.60
 M100E	CP100 CP100ST	FD10004	100	10 50 100	10 50 100	± 0.50 ± 0.75 ± 1.00	≤ 0.20 ≤ 0.30 ≤ 0.40	± 5.0 ± 1.5 ± 1.0	≤ 2.00 ≤ 0.60 ≤ 0.40	± 1.4 ± 1.4 ± 1.4	≤ 0.6 ≤ 0.6 ≤ 0.6	± 14 ± 2.8 ± 1.4	≤ 6.0 ≤ 1.2 ≤ 0.60
 M250E	CP250 CP250ST	FD10005	250	50 100 250	20.0 40.0 100	± 1.50 ± 1.70 ± 2.50	≤ 0.30 ≤ 0.30 ≤ 0.50	± 3.0 ± 1.7 ± 1.0	≤ 0.60 ≤ 0.30 ≤ 0.20	± 3.0 ± 3.0 ± 3.0	≤ 1.0 ≤ 1.0 ≤ 1.0	± 6.0 ± 3.0 ± 1.2	≤ 2.0 ≤ 1.0 ≤ 0.40
 M1000E	CP1000 CP1000ST	FD10006	1000	100 500 1000	10 50 100	± 3.0 ± 5.0 ± 8.0	≤ 1.6 ≤ 2.5 ≤ 4.0	± 3.0 ± 1.0 ± 0.8	≤ 1.60 ≤ 0.50 ≤ 0.40	± 12 ± 12 ± 12	≤ 4.0 ≤ 4.0 ≤ 4.0	± 12 ± 2.4 ± 1.2	≤ 4.0 ≤ 0.80 ≤ 0.40

*CV means Coefficient of Variation (%)

DISTRIMAN®													
Description					Part Number								
DISTRIMAN (1 µL to 1.25 mL)					F164001								
WITH DISTRITIPS®													
DISTRITIPS (Pack of 50)	Aliquot Range	Part Number	Volume (µL)	Volume (%)	Maximum Permissible Errors								
					Gilson				ISO 8655-5 (Table 2)				
					Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	
125 µL Micro Micro Pre-Sterile*	1-12.5 µL	F164100 F164130	2 5 10	1.6 4.0 8.0	± 0.1 ± 0.125 ± 0.2	≤ 0.08 ≤ 0.075 ≤ 0.1	± 5.0 ± 2.5 ± 2.0	≤ 4.00 ≤ 1.50 ≤ 1.00	± 0.5 ± 1.25 ± 1.25	≤ 0.5 ≤ 1.25 ≤ 1.25	± 25.0 ± 25.0 ± 12.5	≤ 25.00 ≤ 25.00 ≤ 12.5	
1250 µL Mini Mini Pre-Sterile*	10-125 µL	F164110 F164140	20 50 100	1.6 4.0 8.0	± 0.8 ± 1 ± 1	≤ 0.2 ≤ 0.4 ≤ 0.6	± 4.0 ± 2.0 ± 1.0	≤ 1.00 ≤ 0.80 ≤ 0.60	± 5.0 ± 10.0 ± 10.0	≤ 5.0 ≤ 5.0 ≤ 5.0	± 25.0 ± 20.0 ± 10.0	≤ 25.0 ≤ 10.0 ≤ 5.0	
12.5 mL Maxi Maxi Pre-Sterile*	0.1-1.25 mL	F164120 F164150	200 500 1000	1.6 4.0 8.0	± 6 ± 7.5 ± 10	≤ 1 ≤ 1.5 ≤ 2.5	± 3.0 ± 1.5 ± 1.0	≤ 0.50 ≤ 0.30 ≤ 0.25	± 50.0 ± 62.5 ± 62.5	≤ 37.5 ≤ 37.5 ≤ 37.5	± 25.0 ± 12.5 ± 6.25	≤ 18.75 ≤ 7.50 ≤ 3.75	

CV means Coefficient of Variation (%)

*Pre-sterile refers to sterility assurance level between SAL10⁻² and SAL10⁻⁵ (individually wrapped).



GILSON PIPETTE SPECIFICATIONS

SYSTEMATIC ERROR = ACCURACY
RANDOM ERROR = REPEATABILITY

PLATEMASTER®															
Model	PIPETMAN® DIAMOND Tips			Part Number	Nominal Volume (µL)	Volume (µL)	Volume (%)	Maximum Permissible Errors							
								Gilson				ISO 8655-2 (Table 2)			
								Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
P20	D200 DS200**	D200ST DS200ST**	DF100ST DF200ST DFS200ST**	F110761	20	0.5	2.5	± 0.12	≤ 0.1	± 24.0	± 20.00	N/A	N/A	N/A	N/A
						10	50	± 0.12	≤ 0.1	± 1.2	± 1.00	± 0.4	± 0.2	± 4	± 2
P220	D200 DS200* D300	D200ST	DF200ST DFS200ST** DF300ST	F110762	220	2	0.9	± 0.12	≤ 0.15	± 6.0	± 7.50	N/A	N/A	N/A	N/A
						5	2.3	± 0.25	≤ 0.175	± 5.0	± 3.50	N/A	N/A	N/A	N/A
						20	9.1	± 0.4	≤ 0.3	± 2.0	± 1.50	N/A	N/A	N/A	N/A
						100	45.5	± 1	≤ 0.8	± 1.0	± 0.80	± 3.52	± 1.32	± 3.52	± 1.76
						200	90.9	± 1.6	≤ 0.8	± 0.8	± 0.40	± 3.52	± 1.32	± 3.52	± 1.76
						220	100	± 1.8	≤ 0.8	± 0.8	± 0.36	± 3.52	± 1.32	± 3.52	± 1.76

*CV means Coefficient of Variation (%)
**Validated for use with 384-well plates

PIPETMAN® M96									
Model	PIPETMAN® DIAMOND Tips	Volume Range (µL)		Volume Test Control		GILSON			
		Standard Pipette Mode	Repetitive Mode	(µL)	(%)	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
20	D200	2-20 µL	1-20 µL	2	10	± 0.12	≤ 0.100	± 6.00	≤ 5.0
				10	50	± 0.12	≤ 0.100	± 1.20	± 1.0
				20	100	± 0.20	± 0.180	± 1.00	± 0.9
200	D200	10-200 µL	5-200 µL	20	10	± 0.4	≤ 0.2	± 2.00	≤ 1.25
				100	50	± 1.00	≤ 0.60	± 1.00	± 0.60
				200	100	± 1.60	± 0.80	± 0.80	± 0.40

*CV means Coefficient of Variation (%)

DISPENSAN®													
Model	Part Number	Volume Range (mL)	Scaling (mL)	Nominal Volume (µL)	Volume (%)	Maximum Permissible Errors							
						Gilson				ISO 8655-5 (Table 1)			
						Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*	Systematic Error (µL)	Random Error (µL)	Systematic Error (%)	Random Error (CV)*
DISPENSAN 2.5 mL	F110101	0.25-2.5	0.05	2500	10	± 12.0	≤ 2.0	± 4.8	≤ 0.80	± 15.0	≤ 5.0	± 6.0	≤ 2.0
					50	± 12.0	≤ 2.0	± 1.0	≤ 0.16	± 15.0	≤ 5.0	± 1.2	± 0.4
					100	± 12.0	≤ 2.0	± 0.5	≤ 0.08	± 15.0	≤ 5.0	± 0.6	± 0.2
DISPENSAN 5.0 mL	F110102	0.5-5	0.10	5000	10	± 30.0	≤ 5.0	± 6.0	≤ 1.00	± 30.0	≤ 10.0	± 6.0	≤ 2.0
					50	± 30.0	≤ 5.0	± 1.2	≤ 0.20	± 30.0	≤ 10.0	± 1.2	± 0.4
					100	± 30.0	≤ 5.0	± 0.6	≤ 0.10	± 30.0	≤ 10.0	± 0.6	± 0.2
DISPENSAN 10 mL	F110103	1-10	0.20	10000	10	± 60.0	≤ 10.0	± 6.0	≤ 1.00	± 60.0	≤ 20.0	± 6.0	≤ 2.0
					50	± 60.0	≤ 10.0	± 1.2	≤ 0.20	± 60.0	≤ 20.0	± 1.2	± 0.4
					100	± 60.0	≤ 10.0	± 0.6	≤ 0.10	± 60.0	≤ 20.0	± 0.6	± 0.2
DISPENSAN 25 mL	F110104	2.5-25	0.50	25000	10	± 150.0	≤ 25.0	± 6.0	≤ 1.00	± 150.0	≤ 50.0	± 6.0	≤ 2.0
					50	± 150.0	≤ 25.0	± 1.2	≤ 0.20	± 150.0	≤ 50.0	± 1.2	± 0.4
					100	± 150.0	≤ 25.0	± 0.6	≤ 0.10	± 150.0	≤ 50.0	± 0.6	± 0.2
DISPENSAN 50 mL	F110105	5-50	1.00	50000	10	± 300.0	≤ 50.0	± 6.0	≤ 1.00	± 300.0	≤ 100.0	± 6.0	≤ 2.0
					50	± 300.0	≤ 50.0	± 1.2	≤ 0.20	± 300.0	≤ 100.0	± 1.2	± 0.4
					100	± 300.0	≤ 50.0	± 0.6	≤ 0.10	± 300.0	≤ 100.0	± 0.6	± 0.2

*CV means Coefficient of Variation (%)