

Legacy Series Specifications

Legacy Model	Infuse Only Pumps						
	KDS 100	KDS 100L	KDS 100Y	KDS 101	KDS 200	KDS 220	KDS 250
Order Code 110 VAC	78-0100	78-0100ZZ	78-0100Y	78-0101	78-0200	78-0220	78-0250
Order Code 220 VAC	78-1100	78-1100ZZ	78-1100Y	78-1101	78-1200	78-1220	78-1250
Order Code 220 VAC with CE Mark	78-9100	78-9100ZZ	78-9100Y	78-9101	78-9200	78-9220	78-9250
Mode	Infuse	Infuse	Infuse	Infuse	Infuse	Infuse	Infuse
# Syringes	One	One	One	Two	Two	10 Maximum	Four
Syringe Size	10 µl to 60 ml	10 µl to 60 ml	10 µl to 60 ml	10 µl to 10 ml	10 µl to 140 ml	10 µl to 10 ml (up to 10) 40 ml to 60 ml (up to 6) 100 ml to 140 ml (up to 4)	10 µl to 10 ml
User Interface	Keypad	Keypad	Keypad	Keypad	Keypad with numerics	Keypad with numerics	Keypad with numerics
Display	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD
Accuracy	+/-<1%	+/-<1%	+/-<1%	+/-<1%	+/-<1%	+/-<1%	+/-<1%
Repeatability	+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%
Linear Force	20 lb/9 kg	20 lb/9 kg	20 lb/9 kg	40 lb/18 kg	40 lb/18 kg	40 lb/18 kg	40 lb/18 kg
Force Adjustment	-	-	-	-	-	-	-
Minimum Flow Rate 10 µl syringe	0.1 µl/hr	0.1 µl/hr	0.1 µl/hr	0.001 µl/min	0.001 µl/hr	0.001 µl/hr	0.001 µl/hr
Maximum Flow Rate 10 ml syringe	127 ml/hr	127 ml/hr	127 ml/hr	0.351 ml/min	1270 ml/hr	1270 ml/hr	1270 ml/hr
Maximum Flow Rate 60 ml syringe	423 ml/hr	423 ml/hr	423 ml/hr	-	4235 ml/hr	4235 ml/hr	-
Maximum Flow Rate 140 ml syringe	-	-	-	-	8824 ml/hr	8824 ml/hr	-
Drive Motor	7.5' Stepper Motor	7.5' Stepper Motor	7.5' Stepper Motor	7.5' Stepper Motor	1.8' Stepper Motor	1.8' Stepper Motor	1.8' Stepper Motor
Motor Gearbox	25:1	25:1	25:1	150:1	N/A	N/A	N/A
Microprocessor Motor Drive Control	1/2 microstepping	1/2 microstepping	1/2 microstepping	1/2 microstepping	1/16 microstepping	1/16 microstepping	1/16 microstepping
# microsteps/one revolution of lead screw	2400	2400	2400	14400	6400	6400	6400
Advance per Microstep	0.529 µm	0.529 µm	0.529 µm	0.088 µm	0.1654 µm	0.1654 µm	0.1654 µm
Minimum Step Rate	30 sec/µstep	30 sec/µstep	30 sec/µstep	30 sec/µstep	120 sec/µstep	120 sec/µstep	120 sec/µstep
Maximum Step Rate	0.0025 sec/µstep	0.0025 sec/µstep	0.0025 sec/µstep	0.0025 sec/µstep	0.000625 sec/µstep	0.000625 sec/µstep	0.000625 sec/µstep
Pusher Travel Rate							
Minimum	0.10583 µm/min	0.10583 µm/min	0.10583 µm/min	0.001767 µm/min	0.10583 µm/min	0.10583 µm/min	0.10583 µm/min
Maximum	12700 µm/min	12700 µm/min	12700 µm/min	2033 µm/min	126900 µm/min	126900 µm/min	126900 µm/min
Multi-step Programming	No	No	No	No	Programmable Model	Programmable Model	Programmable Model
Pusher Block Stall Detection	No	No	No	No	Yes	Yes	Yes
Computer Interface	No	No	No	No	RS-232	RS-232	RS-232
TTL	No	No	No	No	Yes	Yes	Yes
Networking (Daisy-chain)	No	No	No	No	Yes	Yes	Yes
Audible Alarm Indication							
End of Run	Optional	Yes	Optional	Optional	Optional	Optional	Optional
Run LED	No	Yes	No	No	No	No	No
Power Domestic	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz
Power CE and International	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz
Weight	4.5 lb/2 kg	4.5 lb/2 kg	4.5 lb/2 kg	4.5 lb/2 kg	9.5 lb/4 kg	9.5 lb/4 kg	9.5 lb/4 kg
Dimensions (in)	9 X 6 x 5	9 X 6 x 5	9 X 6 x 5	9 X 6 x 5	11 x 9 x 5.5	11 x 9 x 5.5	11 x 9 x 5.5
Dimensions (cm)	23 x 15.25 x 13	23 x 15.25 x 13	23 x 15.25 x 13	23 x 15.25 x 13	28 x 23.5 x 14	28 x 23.5 x 14	28 x 23.5 x 14
Certifications							
CE, ETL, UL, CSA, CB Scheme	CE Model	CE Model	CE Model	CE Model	CE Only (no ETL)	CE Only (no ETL)	CE Only (no ETL)
EN 61010, EN 61326							
WEEE (just WEEE - not RoHS)	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
Programmable Model	N/A	N/A	N/A	N/A	KDS 200P	KDS 220P	KDS 250P
Order Code 110 VAC					78-0202	78-0222	78-0252
Order Code 220 VAC					78-1202	78-1222	78-1252
Order Code 220 VAC with CE Mark					78-9202	78-9222	78-9252

Infuse/Withdraw Pumps		Push/Pull Pumps		Continuous Pump	High Pressure Pump	Remote Injector Pump
KDS 210	KDS 230	KDS 120	KDS 260	KDS 270	KDS 410	KDS 310 Plus
78-0210	78-0230	78-0120	78-0260	78-0270	78-0410	78-0311
78-1210	78-1230	78-1120	78-1260	78-1270	78-1410	78-1311
78-9210	78-9230	78-9120	78-9260	78-9270	78-9410	78-9311
Infuse/Withdraw	Infuse/Withdraw	Push/Pull	Push/Pull	Infuse/Withdraw/Continuous	Infuse/Withdraw	Infuse/Withdraw
Two	10 Maximum	One and One	Two and Two	Two and Two (Four total)	One	One
10 µl to 140 ml	10 µl to 10 ml (up to 10) 40 ml to 60 ml (up to 6) 100 ml to 140 ml (up to 4)	10 µl 10 ml	10 µl to 60 ml	10 µl to 60 ml (up to 4)	10 µl to 140 ml	0.5 µl to 250 µl
Keypad with numerics	Keypad with numerics	Keypad	Keypad with numerics	Keypad with numerics	Keypad with numerics	Keypad
Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD	Backlit LCD
+/-<1%	+/-<1%	+/-<1%	+/-<1%	+/-<1%	+/-<1%	+/-<1%
+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%	+/-0.1%
40 lb/18 kg	40 lb/18 kg	20 lb/9 kg	40 lb/18 kg	40 lb/18 kg	>100 lb/45 kg	2 lb/ 0.9kg
-	-	-	-	-	-	-
0.001 µl/hr	0.001 µl/hr	0.1 µl/hr	0.001 µl/hr	0.001 µl/hr	-	145.6 µl/min (100 µl syr)
1270 ml/hr	1270 ml/hr	127 ml/hr	1270 ml/hr	1270 ml/hr	1270 ml/hr	-
4235 ml/hr	4235 ml/hr	423 ml/hr	4235 ml/hr	4235 ml/hr	4235 ml/hr	-
8824 ml/hr	8824 ml/hr	-	8824 ml/hr	8824 ml/hr	8824 ml/hr	-
1.8' Stepper Motor	1.8' Stepper Motor	7.5' Stepper Motor	1.8' Stepper Motor	1.8' Stepper Motor	1.8' Stepper Motor	-
n/a	n/a	25:1	N/A	N/A	N/A	N/A
1/16 microstepping	1/16 microstepping	1/2 microstepping	1/16 microstepping	1/16 microstepping	1/16 microstepping	-
6400	6400	2400	6400	6400	6400	-
0.1654 µm	0.1654 µm	0.529 µm	0.1654 µm	0.1654 µm	0.1654 µm	1.58 µm
120 sec/µstep	120 sec/µstep	30 sec/µstep	120 sec/µstep	120 sec/µstep	120 sec/µstep	-
0.000625 sec/µstep	0.000625 sec/µstep	0.0025 sec/µstep	0.000625 sec/µstep	0.000625 sec/µstep	0.000625 sec/µstep	-
-	-	-	-	-	-	-
0.10583 µm/min	0.10583 µm/min	0.10583 µm/min	0.10583 µm/min	0.10583 µm/min	0.10583 µm/min	-
126900 µm/min	126900 µm/min	12700 µm/min	126900 µm/min	126900 µm/min	126900 µm/min	-
Programmable Model	Programmable Model	No	Programmable Model	Programmable Model	Programmable Model	No
Yes	Yes	No	Yes	Yes	Yes	No
RS-232	RS-232	No	RS-232	RS-232	RS-232	No
Yes	Yes	No	Yes	Yes	Yes	No
Yes	Yes	No	Yes	Yes	Yes	No
Optional	Optional	Optional	Optional	Optional	Optional	Optional
No	No	No	No	No	No	No
100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz	100 ~ 120 VAC 50/60Hz
200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz	200 ~ 240 VAC, 50/60Hz
9.5 lb/4 kg	9.5 lb/4 kg	4.5 lb/2 kg	9.5 lb/4 kg	9.5 lb/4 kg	14.1 lb/6.4 kg	4.5 lb/2 kg
11 x 9 x 5.5	11 x 9 x 5.5	9 X 6 x 5	11 x 9 x 5.5	11 x 9 x 5.5	6 x 11 x 9.5	7 X 1.7 x 2
28 x 23.5 x 14	28 x 23.5 x 14	23 x 15.25 x 13	28 x 23.5 x 14	28 x 23.5 x 14	15 x 28 x 24	17.8 x 4.4 x 5.1
CE Only (no ETL)	CE Only (no ETL)	CE Model	CE Only (no ETL)	CE Only (no ETL)	CE Only (no ETL)	CE Model
Compliant	Compliant	Compliant	Compliant	Compliant	Compliant	Compliant
KDS 210P	KDS 230P	N/A	KDS 260P	KDS 270P	KDS 410 P	
78-0212	78-0232		78-0262	78-0272	78-0412	
78-1212	78-1232		78-1262	78-1272	78-1412	
78-9212	78-9232		78-9262	78-9272	78-9412	