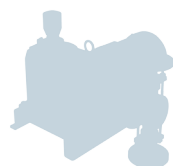
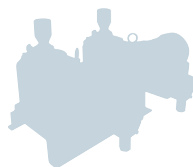
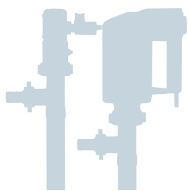
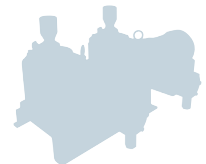
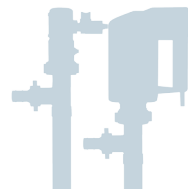


KEMPION

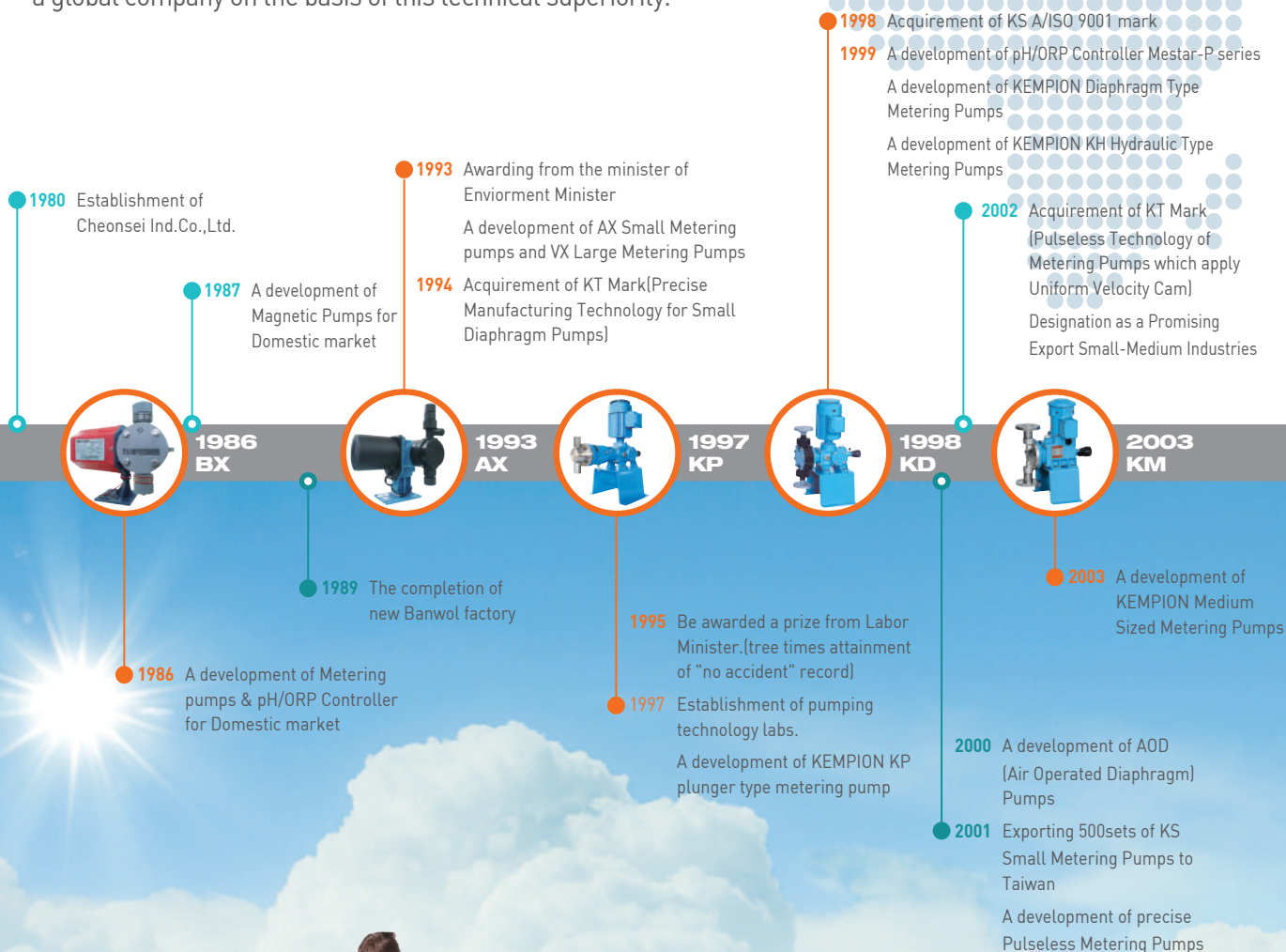


천세산업 | 주 |

www.cheonsei.co.kr

Representative Company of Metering Pumps

CHEONSEI IND CO., LTD. regards quality as life and has built a firm position as a market leader in development, design & manufacturing of the Metering Pump's field and has realized customer satisfaction through continuous innovation. CHEONSEI is advancing toward a global company on the basis of this technical superiority.



ISO9001



2004 Acquisition of Promising Small and Medium Enterprise's Authentication by Gyeonggi Provincial Government

2005 Conclusion of agreement for building ERP system, supported by KEPCO
Removal of Head office to Ansan City
A development of BLDC Automatic Liquid Control Metering Pumps(120W Class)

2007 Acquisition of NEP (New Excellent Products) Certificate for Diaphragm Type Continuous Flow Metering Pumps from the Ministry of Commerce, Industry & Energy

2009 Acquisition of KS Q/ISO 9001:2009 Mark

Acquirement of Patent for Control Method for Pulseless Metering Pumps of Triplex Head by using Constant Velocity Cam related with Pulseless Metering Pumps

2012 Acquisition of Good Design Certificate for Solenoid Metering Pumps

2015 Acquisition of Performance Certificate for Diaphragm Type Continuous Flow Metering Pumps from the Ministry of Commerce, Industry & Energy
Acquirement of CE Mark (Solenoid Metering Pumps - SP Series)
Acquirement of Patent for Hydraulic By-pass Type Metering Pumps

2004 PKD

2006 BLDC

2009 DR

2012 SP

2015 BKH

2006 Acquisition of NEP(New Excellent Products) Certificate for Plunger Type Pulseless Metering Pumps from the Ministry of Commerce, Industry & Energy
Acquirement of INNO-BIZ Certificate(Technical Innovation Company certified by the Small & Medium Business Administration)
Acquirement of CE Mark(KD, KM Series)
Acquirement of Patent for Compensation Method of Constant Velocity Cam related with Pulseless Metering Pumps
A development of BLDC Automatic Liquid Control Metering Pumps(300W Class)

2009 A development of Drum Pumps

2010 Acquisition of Patent for Hydraulic Metering Pumps

2011 Acquisition of Patent for Pulseless Metering Pumps by using Dual Constant Velocity Cam

2014 Acquisition of Performance Certificate for Plunger Type Pulseless Metering Pumps from the Ministry of Commerce, Industry & Energy

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ISO9001



KEMPION SMOOTHY Metering Pumps

PKD

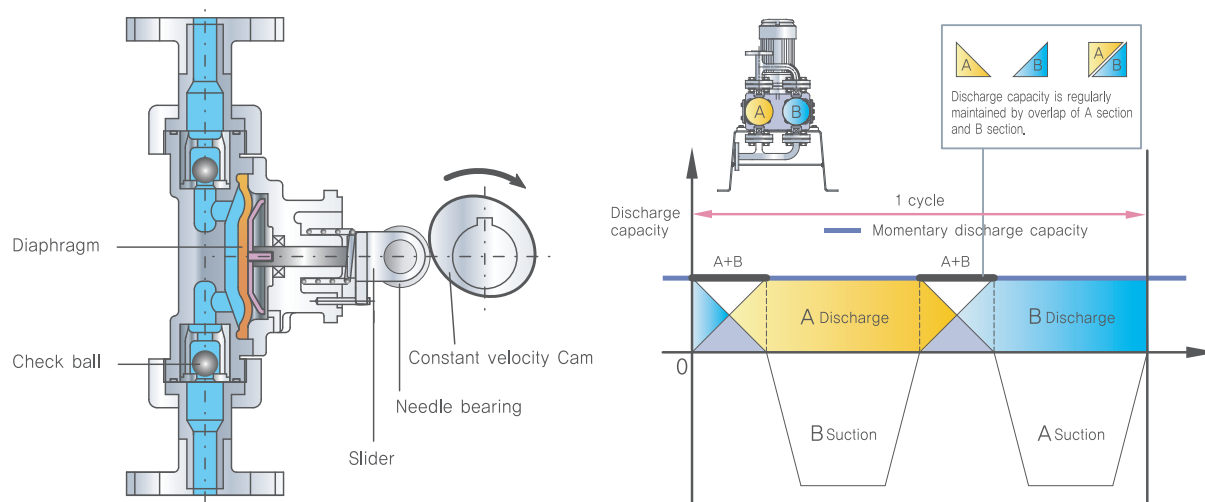
Diaphragm Type Continuous Flow Metering Pumps
by using Constant Velocity Cam



Features & Applications

- Attaching BLDC Motor of high control ability
- Increased confidence of discharge capacity by RPM Feed Back Control
- Proportion remote control by 4~20mA Input Signal
- No need for concern about motor damage at low speed operation
- Simplified electric equipments, possible to control the discharge rate to min. 10% operation of full scale
- AIR CHAMBER FREE!

Patent Principle of adjustment for constant velocity Cam



Standard Specifications

Model Specifications		PKD - Series													
		-500	-121	-241	-521	-102	-212	-412	-702	-143	-113	-203	-243	-333	-423
Max. Capacity (mℓ/min)		50	120	240	520	1040	2100	4100	7000	14900	11200	20700	24000	33000	42000
Max. Discharge Pressure (bar)		10						8	5	3	7	5	7	5	3
Pulse Rate (%) F/S		±5.0													
Stroke Length (mm)		3	4	6				10			15	12.5	17.5		
Stroke Number (SPM)		58	116	58	116	58	116	58	116	87					
Max. Liquid Temp. (°C)		STS, 6T6 : 0~80°C / PTC, FTC : 0~50°C / Ambient temperature : 0~40°C													
Connection (Flange)		KS 10K 15A							KS 10K 25A				KS 10K 40A		
Discharge Volume Controller (BLDC M/C UNIT)	Driver	Power Supply			200V class : 1Ø, 3Ø, 200~240V 400V class : 3Ø, 380~480V										
		Input signal (Auto)			RPM : DC4~20mA RUN/STOP : CLOSE-RUN, OPEN-STOP										
		Output signal			RPM : DC4~20mA (Isolated, Load Resistance : 500Ωbelow) Operation Setting : REMOTE, LOCAL, AUTO, MANU Dry Contact (1a) Operation Status : RUN, TRIP Dry Contact (RUN : 1a, TRIP : 1a1b)										
		Control range of discharge volume			10~100% of Max. rpm										
		Display			RPM : 0~100.0%, Over Current : E.oC, Error of Analog Input Signal : E.or Short Circuit : E.SC, Error of Hall Sensor : E.HS, Over Heat : E.tE										
	Other functions			Ratio operation (Setting range : 0~100% against remote input signal), IP66											
	Motor	0.55kW, FR71								0.75kW, FR80			1.5kW, FR90		
		8 Poles BLDC (Max. rpm : 1,750 / Insulation Class : F), IP66													
Others		Self priming : 1m/Never use this pump to transfer liquid containing slurry or solids													
Painting		Munsell No. : 0.6PB 4.8/10.6													
Weight(kg)-STS type Standard		37	38		53		60		90	95	130		140		

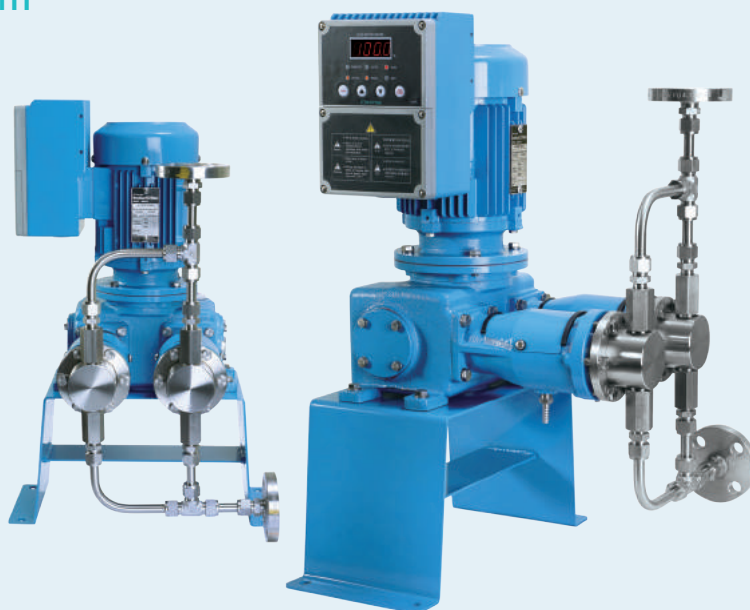
※ The above specifications and design could be changed for improvement without prior notice.

PKP

Plunger Type Continuous Flow Metering Pumps by using Constant Velocity Cam

Features & Applications

- Attaching BLDC Motor of high control ability
- Fine control in high pressure by using double check valve
- Increased confidence of discharge capacity by RPM Feed Back Control
- Proportion remote control by 4~20mA Input Signal
- No need for concern about motor damage at low speed operation
- Simplified electric equipments, possible to control the discharge rate to min. 10% operation of full scale
- AIR CHAMBER FREE!

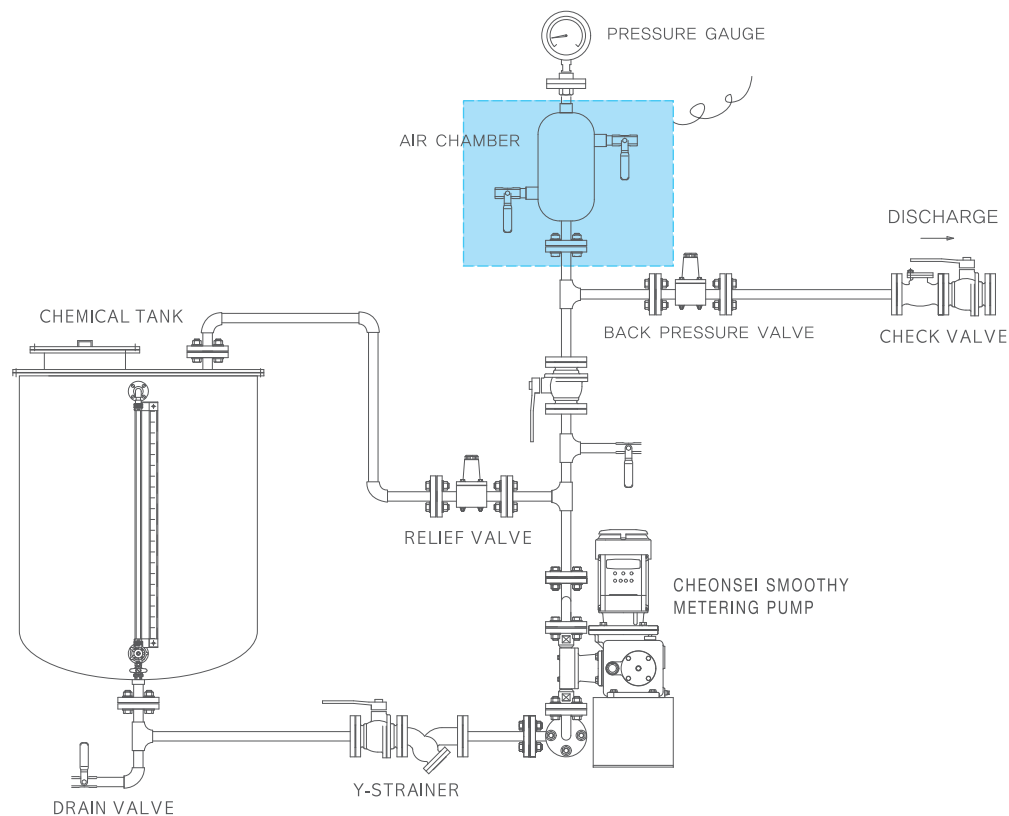


Standard Specifications

Model		PKP - Series																
		061L	062L	121L	122L	161L	162L	221L	222L	301L	302L	061M	121M	161M	221M	301M	401M	501M
Specifications		26	52	110	220	200	410	390	800	700	1480	60	255	480	920	1660	3070	4835
Max. Discharge Pressure (bar)		160					100	104	52	56	28	200	225	160	123	68	38	24
Pulse Rate [%] F/S		±2.0																
Stroke Length (mm)		10										15						
Stroke Number (SPM)		58	116	58	116	58	116	58	116	58	116	87						
Max. Liquid Temp. (°C)		0~100°C, Ambient temperature : 0~40°C																
Connection	Thread	Rc1/4"				Rc3/8"				Rc1/2"		Rc1/4"		Rc3/8"		Rc1/2"		Rc3/4"
	Flange	KS63K15A					KS40K15A			KS20K15A		-		KS63K15A		KS40K15A	KS20K15A	KS20K20A
Discharge Volume Controller (BLDC M/C UNIT)	Driver	Power Supply					200V class : 1Ø, 3Ø, 200~240V 400V class : 3Ø, 380~480V											
		Input signal (Auto)					RPM : DC4~20mA RUN/STOP : CLOSE-RUN, OPEN-STOP											
		Output signal					RPM : DC4~20mA (Isolated, Load Resistance : 500Ωbelow) Operation Setting : REMOTE, LOCAL, AUTO, MANU Dry Contact (1a) Operation Status : RUN, TRIP Dry Contact (RUN : 1a, TRIP : 1a1b)											
		Control range of discharge volume					5~100% of Max. rpm											
		Display					RPM : 0~100.0%, Over Current : E.oC, Error of Analog Input Signal : E.or Short Circuit : E.SC, Error of Hall Sensor : E.HS, Over Heat : E.tE											
	Other functions					Ratio operation (Setting range : 0~100% against remote input signal), IP66												
	Motor	0.55kW, FR71										0.75kW, FR80						
		8 Poles BLDC (Max. rpm : 1,750 / Insulation Class : F), IP66																
Others		Self priming : 1m, Never use this pump to transfer liquid containing slurry or solids																
		Above flange standard is only for discharge side. Flange standard of suction side is KS 20K																
Painting		Munsell No. : 0.6PB 4.8/10.6																
Weight(kg)		54				56				60		93		95		99	105	107

※ The above specifications and design could be changed for improvement without prior notice.

Piping Diagram of KEMPION Smoothy Metering Pumps



Possible to achieve production process with high quality

It is possible to find automatic process and defect rate can be lowered, owing to immediate discharge response when stop & start.



Cost and space can be reduced by simplified piping installation

It is economical because length of piping can be shortened and installation place can be easily secured by no need for Air Chamber.



No need for Air Chamber

Because it remove the origin of pulsation by operating method of constant velocity cam, Air Chamber is not necessary.



Easy maintenance

KEMPION Smoothy Metering Pumps using constant velocity cam provides convenience for maintenance. Because it does not need to fill up air for the function maintenance of Air Chamber.

- **Power generation plant** : Remover for desulfurization and denitrification, hydrazine injection process
- **Display materials** : Coating process of film membrane
- **Foods** : Metering injection of food flavoring
- **Paints** : Supplying paints for high pressure spray equipments
- **Medical products** : Proportional injection of raw material for manufacturing process of pharmaceutical product
- **Water treatment · Wastewater treatment** : Injection of Acid-Alkali counteragent

KEMPION

Diaphragm Metering Pumps

KD

Reciprocating Type Metering Pumps
by using Eccentric Cam



Features & Applications

- Can Quantitatively inject chemicals into pressurized container or pipe
- It has solved chemical corrosion and leakage problem by precise design and adopting chemical resistance materials
- Application for the various industry fields

Standard Specifications

Spec. Model	Max. capacity (mL/min)		Max. discharge pressure (bar)	Stroke frequency (SPM)		Diameter of diaphragm (mm)	Stroke length (mm)	Connection			Motor (kW)	Weight (kg) Vert. (Hori.)			
	50Hz	60Hz		Hose				Flange							
				PVC	PTFE										
KD-21H	20	25	10	48	58	30	3	Ø6×Ø11	Ø10×Ø12	KS10K 15A	0.2	14(17)			
KD-61H	50	60	10	48	58	36	4								
KD-12H	100	120	10	96	116	36	4								
KD-22H	210	260	10	48	58	55	6								
KD-52H	420	520	10	96	116	55	6	Ø12×Ø18				Ø12×Ø14	KS10K 15A	0.2	15(18)
KD-82H	700	840	10	96	116	68	5								
KD-13H	850	1,020	10	48	58	100	6								
KD-23H	1,700	2,040	8	96	116	100	6								
KD-33L	2,900	3,480	5	48	58	130	10	-	KS10K 25A	0.4	20(22)				
KD-43L	3,400	4,100	5	96	116	130	6								
KD-73L	6,200	7,440	3	96	116	130	10								
KD-53L	4,800	5,800	5	96	116	130	8								
KD-63L	5,450	6,550	4	96	116	130	9								
KD-33H	2,900	3,480	10	48	58	130	10	-	KS10K 25A	0.4	47(51)				
KD-73H	6,200	7,440	7	96	116	130	10								
KD-43H	3,600	4,400	8	48	58	145	10	-	KS10K 25A	0.4	40(44)				
KD-63H	5,500	6,600	7	48	58	145	15								
KD-93M	7,500	9,100	5	96	116	145	10								
KD-14N	9,800	11,800	4	96	116	145	12.5								
KD-14M	11,500	13,800	5	96	116	145	15								
KD-14H	9,000	10,800	7	48	58	177	17.5	-	KS10K 40A	0.75	86				
KD-14G	13,300	16,000	5	96	116	177	12.5								
KD-24L	18,400	22,000	3	96	116	177	17.5								
KD-24S	23,300	28,000	3	96	116	195	17.5								
KD-24H	18,400	22,000	7	96	116	177	17.5	-	KS10K 40A	1.5	88				
KD-34H	26,600	32,000	5	96	116	195	20								
KD-54L	45,000	54,000	3	96	116	250	20					KS10K 50A	100		

Note) 1. Max.capacity is tested under the following conditions:

- Temperature : Ambient
- Liquid : Potable water
- Discharge pressure : Max. discharge pressure

2. The effective range of discharge volume adjustment is 20% up to 100% of max. capacity.

3. Special requirement of the motor (such as explosion proof) can only be met with horizontal type construction. (Except KDV-14H~54L).

4. The weight is based on standard motor & PTC type pump.

5. The limits of liquid temperature are 0~50°C for PVC and 0~80°C for Stainless Steel respectively.

6. Ambient temperature limit is 0~40°C.

7. Self-priming capacity is 1meter or less in full stroke operation.

8. The Munsell No. of painting is 0.6PB 4.8/10.6 except motor. (The color of the motor is manufacturer standard.)

9. The contents on this catalog may be revised for improvement without prior notice.

KEMPION

Hydraulic Diaphragm Metering Pumps

BKH

Design and manufacture according to
API 675 standard



Features & Applications

- High durability and high safety by Crank driving type
- Sensing the damage of diaphragm and generating the Alarm signal
- Application for whole industries including petrochemistry, processing line, & etc.
- Proportion remote control by BLDC M/C UNIT and SERVO-UNIT

Standard Specifications

Spec. Model		Plunger Diameter (mm)	Capacity (mL/min) 7bar	Max. discharge pressure (bar)		Stroke frequency (SPM) 60Hz	Stroke Length (mm)	Connection		Motor (kW)		
				PC-FC	SS			Thread	Flange			
BKH-A Series	BKH-101A	10	45	15	130	48	20	Rc1/4	KS63K15A KS10K15A	0.2		
	BKH-102A	10	110	15	110	97						
	BKH-103A	10	170	15	90	145						
	BKH-104A	10	210	15	80	193						
	BKH-151A	15	130	15	70	48		Rc3/8	KS40K15A KS10K15A			
	BKH-152A	15	280	15	50	97						
	BKH-153A	15	430	15	40	145						
	BKH-154A	15	550	15	35	193						
	BKH-221A	22	320	15	32	48		Rc1/2	KS20K15A KS10K15A			
	BKH-222A	22	660	15	23	97						
	BKH-223A	22	980	15	19	145						
	BKH-224A	22	1300	15	16	193						
	BKH-321A	32	680	15	15	48		Rc3/4	KS10K20A			
	BKH-322A	32	1380	11	11	97						
	BKH-323A	32	3070	9	9	145						
	BKH-324A	32	2750	8	8	193						
BKH-B Series	BKH-101B	10	85	15	160	48	30	Rc3/8	KS63K15A KS10K15A	0.4		
	BKH-102B	10	180	15	160	97						
	BKH-103B	10	270	15	130	145					Rc1/2	KS40K15A KS10K15A
	BKH-104B	10	360	15	115	193						
	BKH-151B	15	220	15	100	48		Rc1/2	KS20K15A KS10K15A			
	BKH-152B	15	440	15	70	97						
	BKH-153B	15	660	15	58	145						
	BKH-154B	15	840	15	50	193						
	BKH-221B	22	490	15	46	48		Rc1/2	KS20K15A KS10K15A			
	BKH-222B	22	970	15	34	97						
	BKH-223B	22	1450	15	27	145						
	BKH-224B	22	1980	15	23	193						
	BKH-321B	32	1020	15	22	48		Rc3/4	KS20K20A KS10K20A			
	BKH-322B	32	2100	15	16	97						
	BKH-323B	32	3100	13	13	145						
	BKH-324B	32	4150	11	11	193						
	BKH-421B	42	1800	13	13	48		Rc1	KS10K25A			
	BKH-422B	42	3600	9	9	97						
	BKH-423B	42	5400	7	7	145						
	BKH-424B	42	5400	6	6	193						

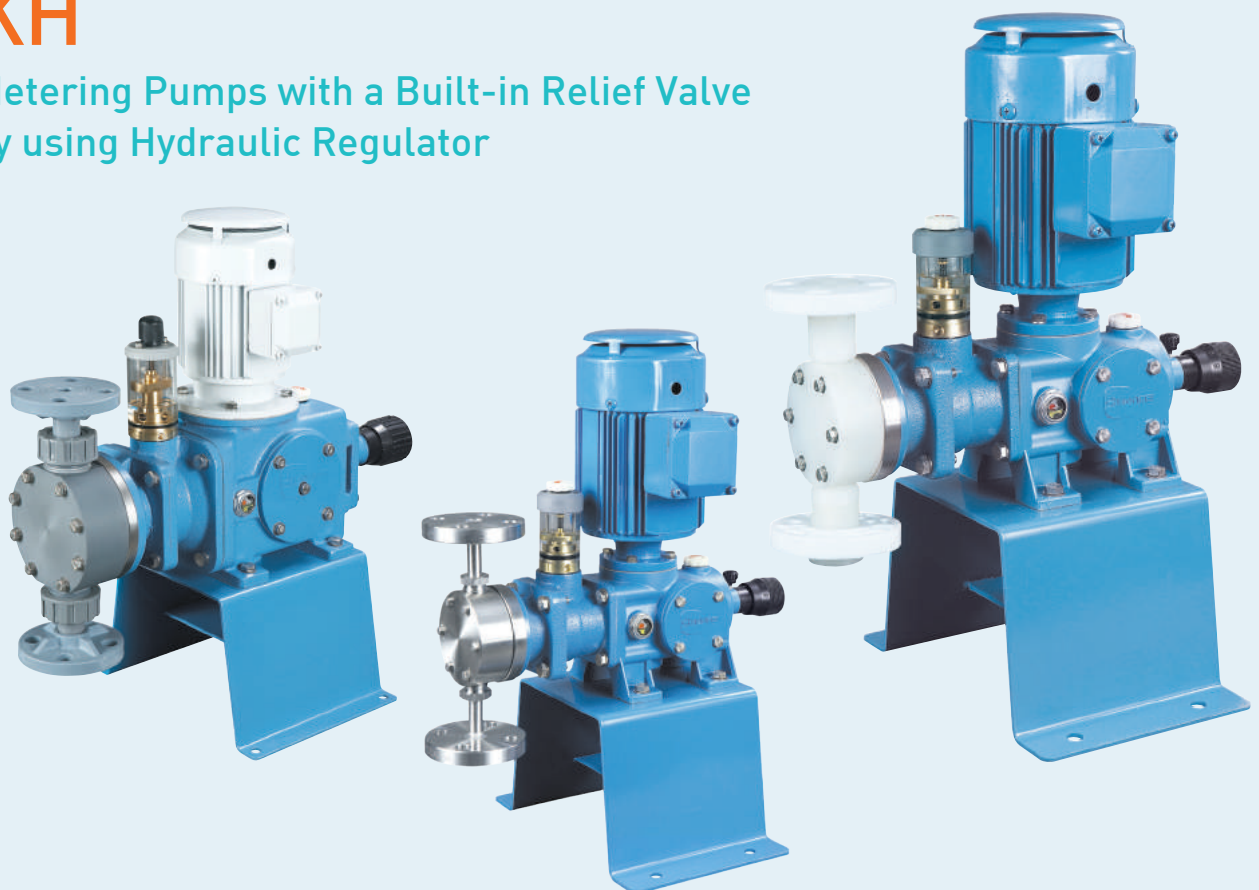
- Note) 1. Max. capacity is tested under the standard conditions(room temperature, clean water)
 2. The limits of liquid temperature are 0~50°C for PC & FC type and 0~80°C for SS6 type.
 3. Ambient temperature limit is 0~40°C.
 4. The Munsell No. of painting is 0.6PB 4.8/10.6 except motor(The color of the motor is manufacturer standard).
 5. The above specifications and design could be changed for improvement without prior notice.

KEMPION

Hydraulic Diaphragm Metering Pumps

KH

Metering Pumps with a Built-in Relief Valve
by using Hydraulic Regulator



Features & Applications

- Increase safety & durability by Hydraulic Regulator
- Application merits of diaphragm pumps for various liquids and plunger pumps for high pressure & precision.
- Flow rate control by manual & remote flow rate control by available Servo-unit & BLDC M/C UNIT.
- It is possible to select Vertical type pumps & Horizontal type pumps in accordance with field condition.
- Use for chemical injection in the process line of Petrochemical Industry & Foot Sanitation.

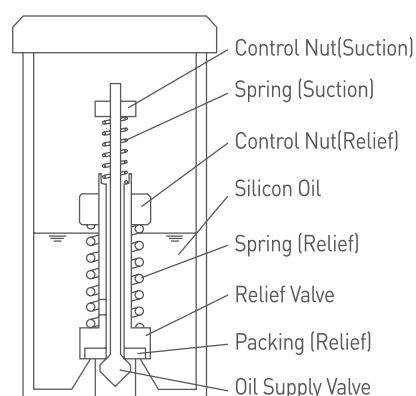
Standard Specifications

Spec. Model	Max.Capacity (mL/min)		Max.Discharge Pressure (bar)		Stroke Frequency (SPM)		Dia. of Piston (mm)	Stroke Length (mm)	Connection (STS)	Motor(kW)	Weight(kg) Vert./Hori. (STS)
	50Hz	60Hz	PTC-FTC	STS	50Hz	60Hz					
KH-51	40	50	10	30	48	58	12	10	KS 20K 15A	0.2	19.5/22
KH-12	80	100	10	30	96	116	12	10			
KH-32	300	360	10	25	48	58	30	10			
KH-72	600	720	10	20	96	116	30	10			
KH-13	915	1,100	10	20	48	58	40	17.5	KS 10K 25A	0.4	61.5/67
KH-23	1,830	2,200	10	15	96	116	40	17.5			
KH-33	2,830	34,00	10	12	48	58	68	17.5			
KH-63	5,660	6,800	7	7	96	116	68	17.5			
KH-33H	2,830	3,400	10	20	48	58	68	17.5	KS 20K 25A	0.75	84
KH-63H	5,660	6,800	10	14	96	116	68	17.5			
KH-14	8,750	10,500	8	8	48	58	122	17.5	KS 10K 40A		
KH-24	17,500	21,000	4	4	96	116	122	17.5			

- Note) 1. KS(JIS) 30K flange & ANSI flange is available
 2. Explosion-proof motor and special ordered motor(except voltage & frequency) are available only for Horizontal pump.
 But, in case of KHV-33H, 63H, 14, & 24, vertical motor mounting is possible.
 3. Effective flow control range is 10~100%, NPSHr is 2 meters.
 4. The limits of liquid temperature are 0~50°C for PVC, and 0~80°C for stainless steel & PVDF.
 5. Precision is $\pm 1\%$ F.S. and linearity is $\pm 2\%$ F.S.
 6. The Munsell No. of painting is 0.6PB 4.8/10.6 except motor (motor is manufacturer's standard)

Operation Principles & Structure of Hydraulic Regulator

Eccentric Cam which reduces motor rotation by Worm Gear makes the reciprocating motion of Piston connected to the Slider Shaft. This reciprocal motion of Piston is transmitted to the Working Oil(Silicon Oil) isolated by Diaphragm and the liquid is sucked & discharged. A Hydraulic Regulator built-in Relief Valve adjusts the Working Oil Pressure in order to prevent pump damage when abnormal pressure occurs during operation. If abnormal pressure occurs, Relief Valve will be open when discharge cycle, then the Working Oil in the Hydraulic Regulator will be raised to a certain level in order to prevent pump damage, and Oil Supply Valve will be open when suction cycle, then the Working Oil will be filled in the Working Oil Chamber, Piston will be moved smoothly. And it resumes to normal operational status when the abnormal pressure is removed. Working Oil Pressure can be easily adjusted by Control Nut.

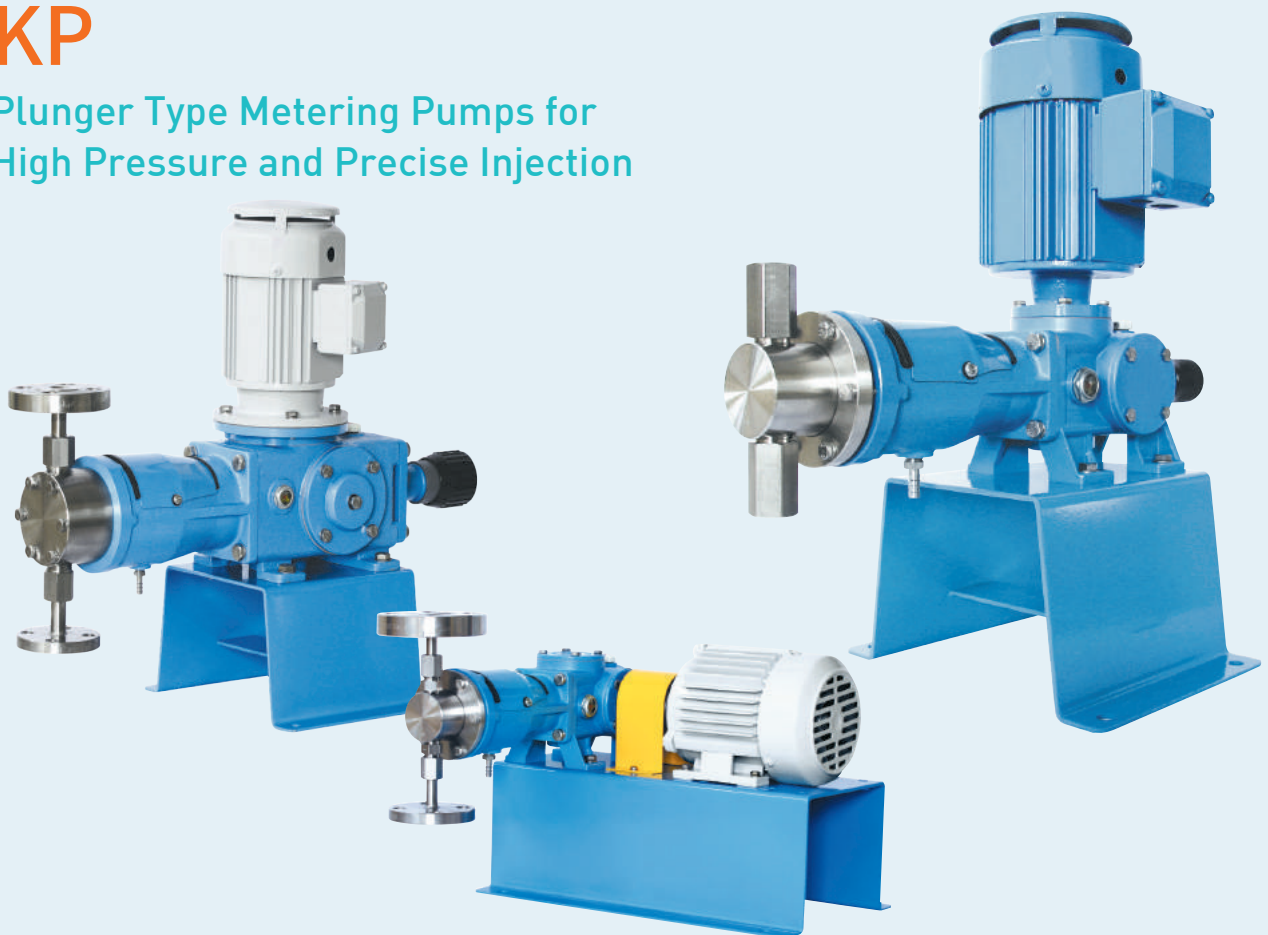


KEMPION

Plunger Metering Pumps

KP

Plunger Type Metering Pumps for
High Pressure and Precise Injection



Features & Applications

- High pressure injection up to 225 bar
- Adjustment precise injection in range of 10~3,000mL/min
- Fine control in high pressure by utilizing double check valve
- Minimized leakage by self aligning design, hard & grinded surface of plunger
- Closed construction for treatment of small leakage
- Excellent durability due to robust design

Standard Specifications

Spec.	Max. capacity (mL/min)		Max. discharge pressure (bar)	Stroke frequency (SPM)		Stroke length (mm)	Plunger Diameter (mm)	Connection		Motor (kW)	Weight (kg) Vert. (STS)		
Model	50Hz	60Hz		50Hz	60Hz			Thread	Flange				
KP-061L	10.5	13	160	48	58	10	6	Rc1/4	63K15A	0.2	18/23		
KP-062L	21	26	160	96	116		12				Rc3/8	40K15A	18/23
KP-121L	45	55	160	48	58								16
KP-122L	90	110	160	96	116			22	20K15A				
KP-161L	83	100	160	48	58		30				20K15A	21/26	
KP-162L	170	205	100	96	116							Rc1/2	20K15A
KP-221L	162	195	104	48	58			Rc1/2	20K15A				
KP-222L	332	400	52	96	116		Rc1/2				20K15A		
KP-301L	290	350	56	48	58							Rc1/2	20K15A
KP-302L	614	740	28	96	116			Rc1/2	20K15A				
KP-061M	16.5	20	200	48	58	15	6			Rc1/4	-		
KP-062M	33	40	200	96	116		12					Rc3/8	63K15A
KP-121M	70	85	225	48	58			16	63K15A				
KP-122M	140	170	225	96	116					22	63K15A		
KP-161M	133	160	160	48	58		30					40K15A	44/47
KP-162M	266	320	160	96	116			Rc1/2	20K15A				47/50
KP-221M	253	305	160	48	58					Rc1/2	20K15A		47/50
KP-222M	510	615	85	96	116		Rc1/2					20K15A	47/50
KP-301M	448	540	90	48	58			Rc1/2	20K15A				47/50
KP-302M	930	1,120	45	96	116					Rc1/2	20K15A		47/50
KP-401M	845	1,020	50	48	58		Rc1/2					20K15A	47/50
KP-402M	1,700	2,050	25	96	116			Rc1/2	20K15A				47/50
KP-501M	1,310	1,575	32	48	58					Rc1/2	20K15A		47/50
KP-502M	2,710	3,260	16	96	116		Rc1/2					20K15A	47/50

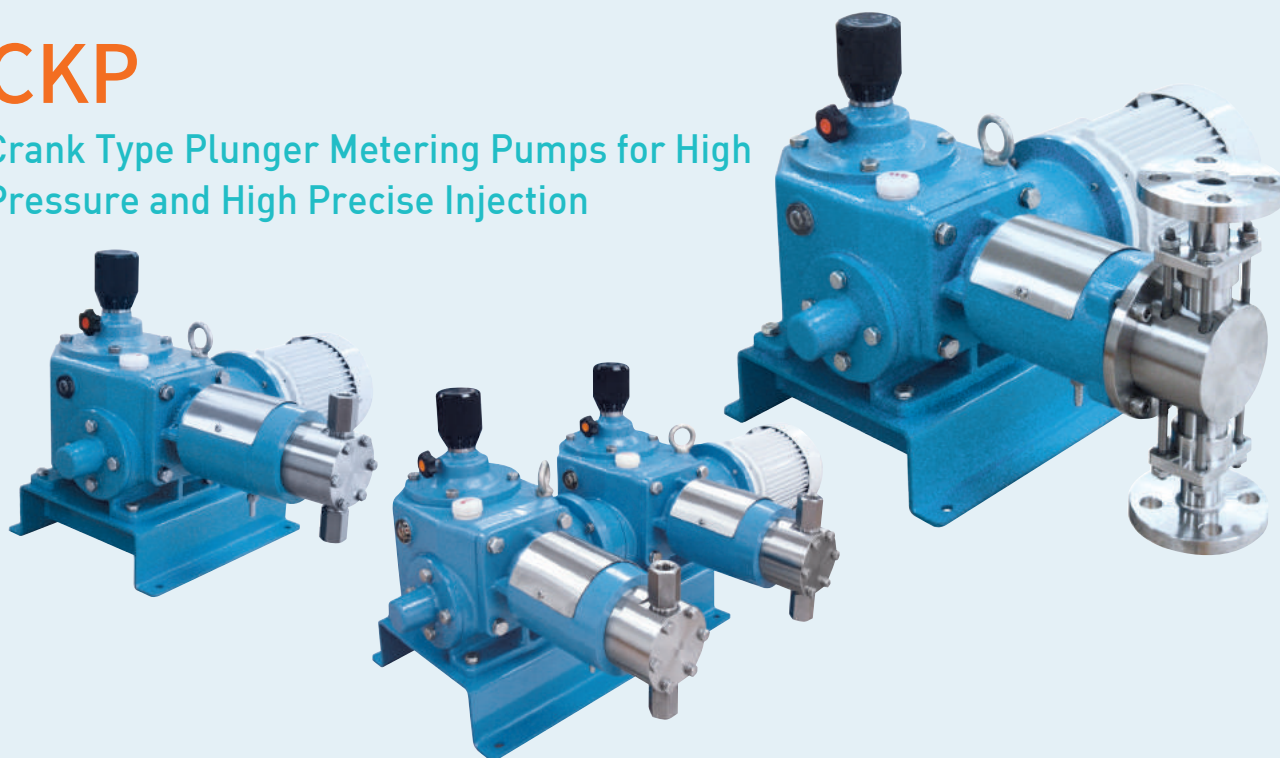
- Note) 1. Maximum capacity is the value when Maximum discharge pressure is applied (with pure water at room temperature).
2. The effective flow control range is 10~100% stroke length. The metering accuracy is within $\pm 1\%$ FS. The linearity is within $\pm 2\%$ FS.
3. Explosion proof motor or other special requirement of the motor (except voltage, frequency) can only be met with horizontal type.
4. The standard joint flange indicates the discharge side. In case of the suction side is fixed KS20K flange.
5. The limit of liquid temperature is 0~100°C and ambient temperature limit is 0~40°C
6. The weight is based on the thread type including standard motor.
7. Self-priming capacity is 1m for Ø6, 2m for Ø12~Ø22, 3m for Ø30~Ø50 of the plunger diameters.
8. The limit of viscosity is 500cP for 6~12 and 1000cP for 16~50 of the plunger diameters.
9. Do not use this pump to transfer liquids constraining slurry.
10. The Munsell No. of painting is 0.6PB 4.8/10.6 except motor. (The color of the motor is manufacturer standard.)
11. The specifications on this catalogue may be revised for improvement without prior notice.

Adjustable Crank Type

Plunger Metering Pumps

CKP

Crank Type Plunger Metering Pumps for High Pressure and High Precise Injection



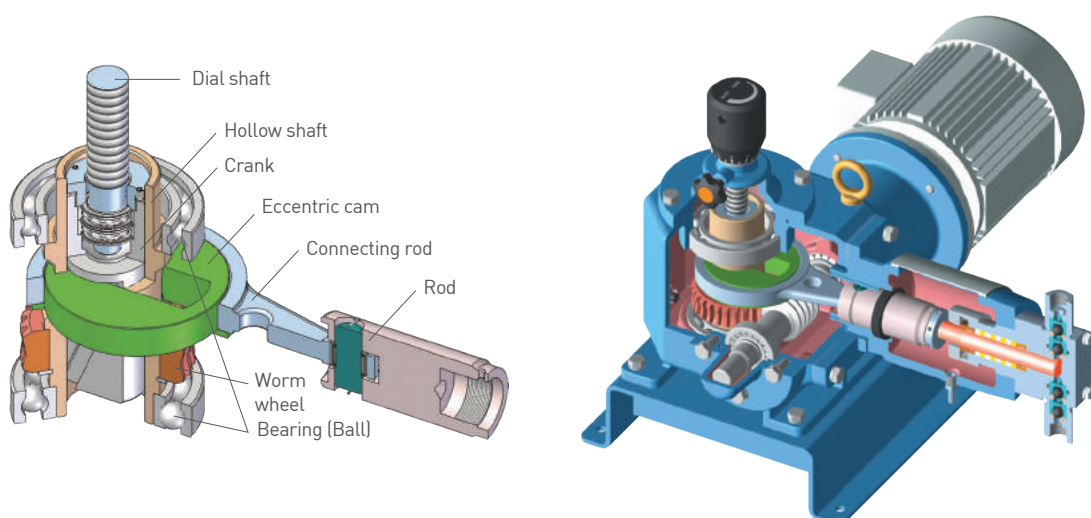
Features & Applications

- Precise and stable constant discharge flow rate guaranteed with positive return crank drive mechanism.
- Precise adjustable injection applicable up to maximum 350bar pressure & maximum 11,000mL discharge rate(660L/h).
- Below $\pm 0.5\%$ FS precision, straightness and $\pm 2\%$ FS repeatability guaranteed at 10~100% of stroke distance.
- 0~100°C of liquid temperature under operation at ambient temperature of 0~40°C.
- Sealed-up construction provided allowing discharge by flowing the liquid leaked from packing to piping system.
- Variety of motor mounting applicable with coupling connection.
- Diversified fittings (plunger diameter, reduction ratio) with combination of simplex, duplex, & triplex operation applicable.
- Outstanding durability under long continuous operation proved.
- Automatic flow rate control applicable with BLDC motor and driver (Number of strokes) and servo unit (stroke distance).
- Requirements of API (American Petroleum Institute) 675 Standard complied.
- Applicable to various water treatment and chemical processes requiring high precision quantitative flow rate or operation under high pressure.

Standard Specifications

Spec. Model	Max. capacity(mL/min)		Max. discharge pressure (bar)	Stroke frequency (SPM)		Plunger Diameter (mm)	Connection		Weight (kg) Thread/ Flange
	50Hz	60Hz		50Hz	60Hz		Thread	Flange	
CKP-162D	370 [22.2]	445 [26.7]	350	58	70	16	Rc1/2	-	90
CKP-163D	465 [27.9]	560 [33.6]	350	72	87				
CKP-164D	620 [37.2]	745 [44.7]	270	96	116				
CKP-222D	715 [42.9]	860 [51.6]	225	58	70	22	Rc1/2	-	91
CKP-223D	905 [54.3]	1,090 [65.4]	185	72	87				
CKP-224D	1,200 [72]	1,440 [86.4]	145	96	116				
CKP-302D	1,350 [81]	1,620 [97.2]	120	58	70	30	Rc3/4	63K20A	93/97
CKP-303D	1,700 [102]	2,050 [123]	100	72	87				
CKP-304D	2,250 [135]	2,700 [162]	78	96	116				
CKP-402D	2,400 [144]	2,900 [174]	68	58	70	40	Rc3/4	40K20A	95/98
CKP-403D	3,000 [180]	3,650 [219]	55	72	87				
CKP-404D	4,000 [240]	4,850 [291]	42	96	116				
CKP-502D	3,750 [225]	4,550 [273]	44	58	70	50	R1	20K25A	95/98
CKP-503D	4,750 [285]	5,700 [342]	36	72	87				
CKP-504D	6,250 [375]	7,550 [453]	28	96	116				
CKP-602D	5,500 [330]	6,600 [396]	30	58	70	60	R1	20K25A	96/98
CKP-603D	6,850 [411]	8,250 [495]	25	72	87				
CKP-604D	9,150 [549]	11,000 [660]	19	96	116				

Flow Rate Adjustable Construction



KEMPION

Solenoid Metering Pumps

SP

Diaphragm Metering Pumps of Electronic Control Type



Features & Applications

- Precise injection and flow control by the dual control of Stroke Length & Stroke Numbers
- The operation status can be checked with Status Lamp (LED)
- Sealing and Accuracy are improved by double check Valve
- Can cope with difficult environments by robust IP65 class and casing material of chemical resistance
- Various auto-control function (Option)
 - Ratio Control by input signal of PULSE
 - Multiplication & Division input signal of PULSE
 - Ratio Control by input signal of 4~20mA
 - Alarm for Low Level & Signal Error
 - Remote Run & Stop
- Easy & Safe Air Vent Valve
- Prevent damage from overload by built-in Thermal Protection
- Used for injection of Boiler Chemical, Chlorine Disinfectants, & Food Additives, and used for dosing chemicals in various industrial fields including physico-chemical fields, semiconductor device, water treatment, waste water treatment fields, & etc.



- Relief Valve (Option)
When over pressure, valve is automatically opened and pump & piping can be protected. Function of Air Vent Valve is included.



- Prevent Gas Lock Phenomenon
Support priming

Standard Specifications

Model		SP-A20	SP-A40	SP-A60	SP-A100	SP-A200
Spec.						
Max. Capacity (mL/min)		17	35	60	110	200
Max. Discharge Pressure (bar)		16	12	8	5	3
Stroke Rate (SPM)		150				
Stroke Length (mm)		1.0 (40~100%)		1.25 (30~100%)		
Hose	Suction • Discharge	Ø4×Ø6, Ø4×Ø9		Ø6×Ø8, Ø6×Ø11, Ø5×Ø8		
	Air Vent	Ø4×Ø6				
Self-priming (m)		1.5	2			
Viscosity Limit (mPa·s)	Standard	50		100		
	High Viscosity	500		1000	800	500
Weight (kg)	PP Material	2.4			2.5	
	PVDF Material	2.5			2.6	
Operation Temperature		Ambient Temperature 0~40℃			Liquid Temperature 0~50℃	
Electrical Data		Average Power Consumption (W)	Rated Current (A)	Protection Class		Insulation Class
		17	0.5 / 0.8 (AC115V)	IP65		F

Spec.		Model	SP-B30	SP-B50	SP-B70	SP-B100	SP-B200
Max. Capacity (mL/min)			25	55	70	135	240
Max. Discharge Pressure (bar)			14	8	6	3.5	2
Stroke Rate (SPM)			240				
Stroke Length (mm)			1.0 [40~100%]				
Hose	Suction • Discharge	Ø4×Ø6, Ø4×Ø9			Ø6×Ø8, Ø6×Ø11, Ø5×Ø8		
	Air Vent	Ø4×Ø6					
Self-priming (m)			1	1.5			2
Viscosity Limit (mPa·s)	Standard	50			70		
	High Viscosity	300			700	600	400
Weight (kg)	PP Material	1.9				2	
	PVDF Material	2				2.1	
Operation Temperature			Ambient Temperature 0~40℃				Liquid Temperature 0~50℃
Electrical Data			Average Power Consumption (W)	Rated Current (A)		Protection Class	Insulation Class
			15	0.4		IP65	F

Model		SP-B30H	SP-B50H	SP-B70H	SP-B100H
Spec.					
Max. Capacity (mL/min)		30	55	75	130
Max. Discharge Pressure (bar)		16	12	8	5
Stroke Rate (SPM)		240			
Stroke Length (mm)		1.0 (40~100%)			
Hose	Suction • Discharge	Ø4×Ø6, Ø4×Ø9		Ø6×Ø8, Ø6×Ø11, Ø5×Ø8	
	Air Vent	Ø4×Ø6			
Self-priming (m)		1	1.5		
Viscosity Limit (mPa·s)	Standard	50		70	
	High Viscosity	300		700	600
Weight (kg)	PP Material	2.4			2.5
	PVDF Material	2.5			2.6
Operation Temperature		Ambient Temperature 0~40°C Liquid Temperature 0~50°C			
Electrical Data		Average Power Consumption (W)	Rated Current (A)	Protection Class	Insulation Class
		17	0.5	IP65	F

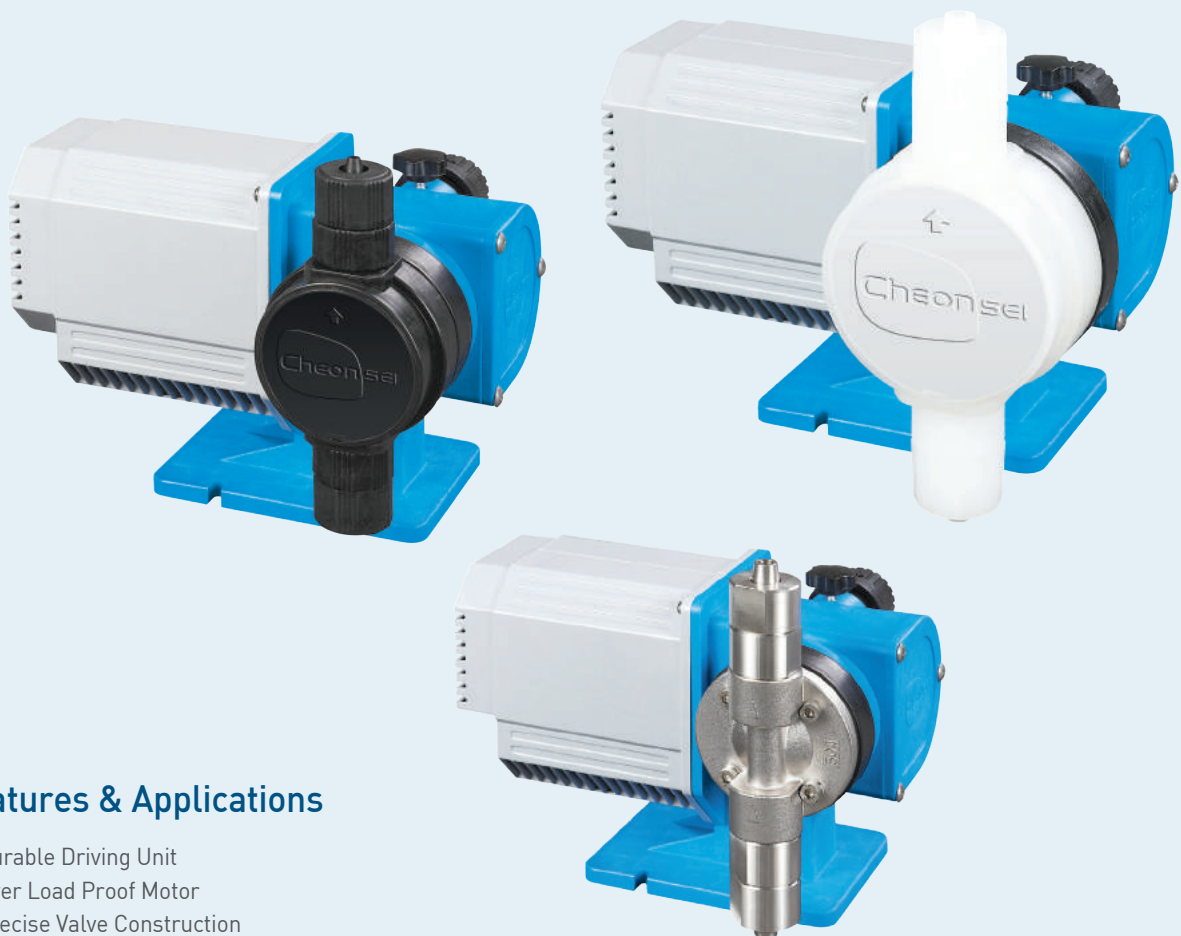
Note) 1. Repeatability is ±2%F.S.(Full Scale) and noise is within 70dB.
 2. Setting pressure of Relief Valve is ±10% of max. discharge pressure.
 3. Specifications can be changed for improvement without prior notice.

KEMPION

Small Diaphragm Metering Pumps

KS

Motor Driven Small Diaphragm Metering Pumps



Features & Applications

- Durable Driving Unit
- Over Load Proof Motor
- Precise Valve Construction
- Gas Locking Prevention
- Easy Dial Setting
- Accessories Available

Standard Specifications

Specs.		Model	KS-51	KS-12	KS-22	KS-32	KS-52
Max. capacity (mL/min)	50Hz		40	80	200	300	480
	60Hz		50	100	240	360	580
Max. discharge pressure (bar)			15	10	7	5	3
Stroke number (SPM)	50Hz		108				
	60Hz		130				
Stroke length (mm)			3		4	6	
PVC hose	HWS		Ø6xØ11				Ø12xØ18
PTFE hose	HWS		Ø10xØ12				
PVC hose for high viscosity	HVS		Ø12xØ18				
PVC hose for air relief valve	HWS		Ø4xØ6				-
PTFE hose for air relief valve	HWS		Ø4xØ6				-
Operation temperature			Ambient temperature 0~40°C				
			Pumping temperature 0~50°C				
Output (W)			14				
Weight (kg)	P□□ type		2.4				2.7
	F□□ type		2.6				2.8
	S□□, 6□□ type		3.1				3.5

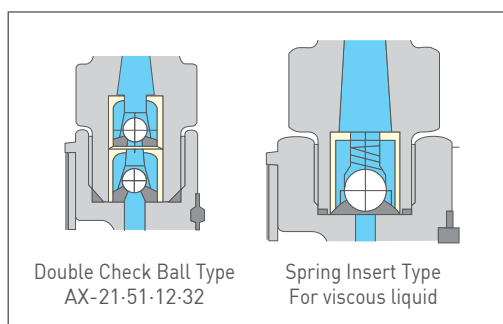
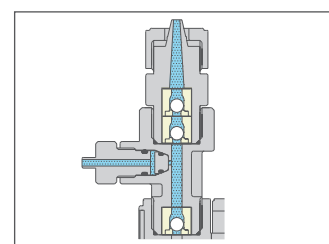
- Note) 1. The listed max. capacity is that at max. discharge pressure
 2. The standard valve structure can only allow the maximum possible viscosities for discharge up to maximum of 50cp
 3. The motor is not explosion proof, please consider the purpose of use fully before choosing
 4. This pump is designed for indoor use. Be sure to use a pump cover if installing out door
 5. Never use this pump to transfer liquids containing slurry (In such a case please consult CHEONSEI)
 6. For any other specifications, please consult CHEONSEI



Various Accessories

There are additional high performance accessories available convenient applications.

- Anti-siphon Check Valves
- Strainer Foot Valve
- Flange Connections, Tees, Elbows



Precise Valve Structure

The degree of precision is maximized since Double check balls or spring insert type is adopted in valve structure



Gas Locking Prevention

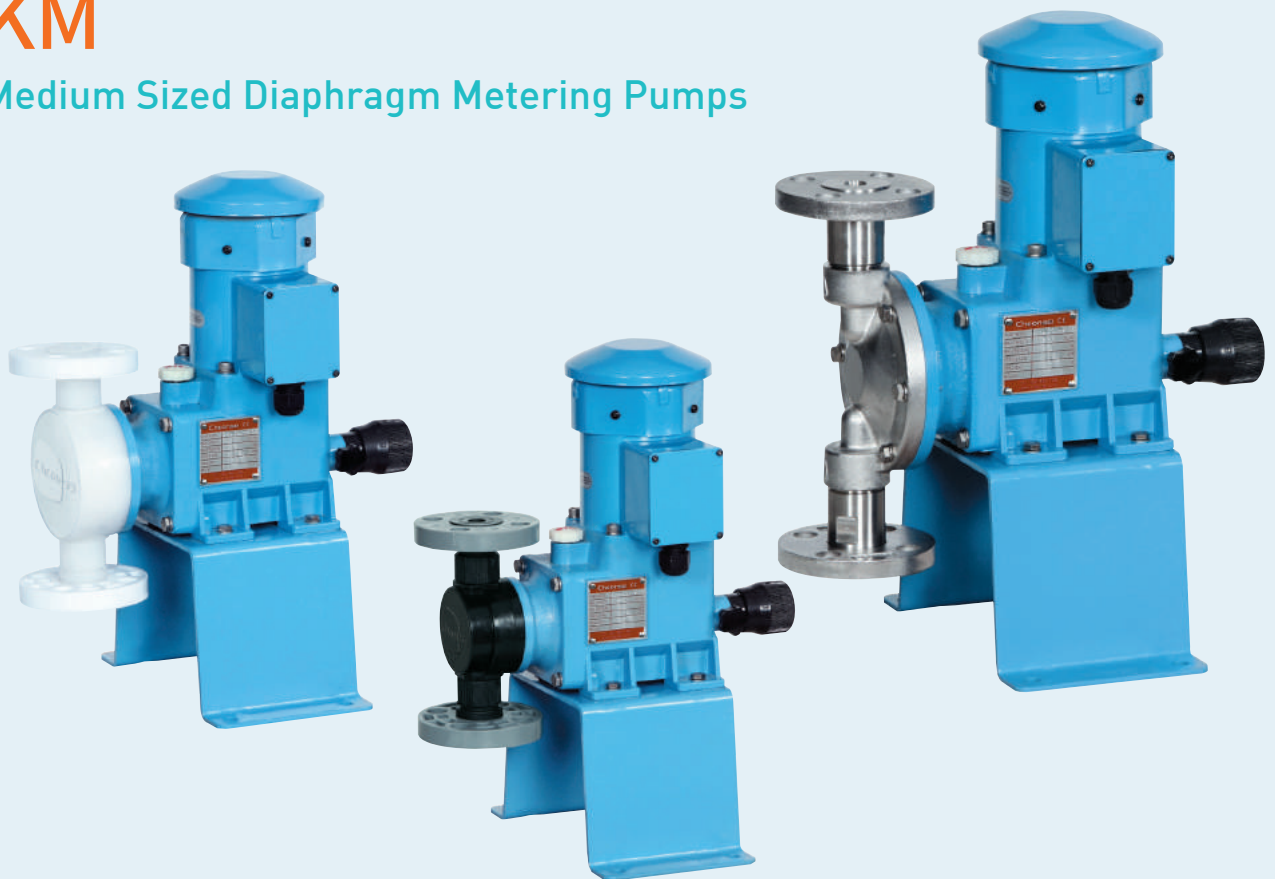
- Liquid End Design minimizes dead space.
- Air Relief Valve can be provided for vaporous liquid.
(Optional item for KS-51~32)

KEMPION

Diaphragm Metering Pumps

KM

Medium Sized Diaphragm Metering Pumps



Features & Applications

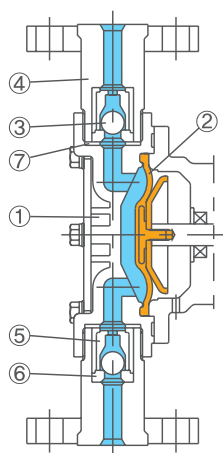
- Economic and compact design.
- Various LEM (Liquid End Material) available to inject all kinds of chemical liquids.
- Efficiently durable and hermetic driving part structure for out-door installation.
- Excellent durability in a continuous running for long time, with a reduction gear by the way of oil bath lubricant.
- A small noise by the helical gear which made by a precised processing.
- The dial by the micrometer method, makes it possible to adjust the capacity precisely during operation.
- Hands free installation and maintenance.

Standard Specifications

Spec. Model	Max. Capacity(mL/min)		Max. Discharge Pressure (bar)	Stroke Number(SPM)		Stroke length (mm)	Diameter of diaphragm (mm)	Connection		Flange	Motor	Weight (kg)
	50Hz	60Hz		Hose								
				PVC	PTFE							
KM-500	42	50	10	95	114	3	30	Ø6×Ø11	Ø10×Ø12	KS10K 15A	60W	8.6
KM-121	104	125	10	95	114	4	36					8.6
KM-251	213	255	10	95	114	5	45					8.6
KM-521	433	520	7	95	114	6	55	Ø12×Ø18				8.9
KM-102	854	1,025	5	95	114	6	68					8.9
KM-212	1,792	2,150	3	95	114	7	90					9.9

- Note) 1. Max. capacity are tested under the condition as follows.
- Temperature : ambient - Liquid : Potable water - Discharge pressure : Max. discharge pressure.
2. The limits of liquid temperature are 0~50°C for PTC-FTC type and 0~80°C for ST6-6T6 type.
3. Self-priming capacity
- KM-500, 121 : 1 meter - KM-251~212 : 2 meter
4. Ambient temperature limit is 0~40°C.
5. The Munsell No. of painting is 0.6PB 4.8/10.6
6. The contents on this data may be revised for improvement without prior notice.

Liquid End Material



Part name	Materials	PTC (PE6)		FTC	ST6		6T6	
	Capacity	500~102	212	500~212	500~102	212	500~102	212
① Head		PP	PVC	PVDF	SSC13		SSC14	
② Diaphragm		PTFE		PTFE	PTFE		PTFE	
③ Check Ball		CERAMIC (STS316)		CERAMIC	STS316		STS316	
④ Joint		PP	PVC	PVDF	STS304		STS316	
⑤ Ball Guide		PP	PVC	PVDF	PVDF	SSC13	PVDF	SSC14
⑥ Ball Seat		FKM(EPDM)	PVC	PTFE	PTFE	STS304	PTFE	STS316
⑦ O-ring		FKM(EPDM)		PTFE	PTFE		PTFE	

※ Material other than standard can be used for special purpose pump.
Please contact us or distributor in your area.

ISO9001



KEMPION

Drum Pumps

DR

Drum and Container Pumps



Features & Applications

- Removing unstable elements of pump performance with sealless structure
- Maintenance cost can be reduced remarkably due to the robust design against the indeliberate dry run for a short period. (Max. 15 minutes)
- Preventing motor damage by installing of dual safety device in the motor
- Easy operation and simple part replacement To transfer from plating facility, chemical plant or chemical warehouse, or to decant into small units
- To transfer or refill chemicals in metal factory or waste processing facilities
- To refill chemicals in research centers or hospitals
- To transfer chemicals in power plants and public institutes
- To decant organic/inorganic chemicals and high viscosity chemicals into small units from drum, container or can





Specification of Electric Motor

Power	420~430W	RPM	10,000RPM
Voltage	220~230VAC	Protection grade	IP44
Frequency	50/60Hz	Insulation grade	B
Current	2.8A	Weight	3.0~3.1kg

Specification of Air Motor

Supply Pressure	3~6bar	Rated Output	460W
Rated Speed	10,000RPM	Air Consumption	920L/min
Ex-proof Class	Ex II 2 G cp IIC T6	Weight	1.2kg

※ Certificate Number of Explosion Proof : 0425 ATEX 2535

Drum Pump (Electric Motor)

Material	PP		PVDF		STS316	
Type	DR-PL Low Head	DR-PH High Head	DR-FL Low Head	DR-FH High Head	DR-SL Low Head	DR-SH High Head
Max. Flow Rate (L/min)	130	80	130	80	160	90
Max. Head (m)	8	21	8	21	7.5	17
Max. Viscosity (mPas)	200	800	200	800	150	600
Max. Specific Gravity	1.3	1.6	1.3	1.6	1.3	1.6
Dia. for Hose Connection (mm)	25		32	25	25	

Drum Pump (Air Motor)

Material	PP		PVDF		STS316	
Type	DR-PL Low Head	DR-PH High Head	DR-FL Low Head	DR-FH High Head	DR-SL Low Head	DR-SH High Head
Max. Flow Rate (L/min)	135	85	135	85	165	95
Max. Head (m)	8.5	22	8.5	22	8	18
Max. Viscosity (mPas)	1000	1200	1000	1200	400	800
Max. Specific Gravity	1.4	1.8	1.4	1.8	1.4	1.8
Dia. for Hose Connection (mm)	25		32	25	25	



KEMPION

Digital pH/ORP Controller MESTAR

Features & Applications

- pH/ORP Selection function between pH & ORP
- Convenient Automatic Calibration
 - Zero : pH 7
 - Span : pH 4 or pH 9
- Selection of the display which is suitable for using condition
 - MESTAR-H Series : LED Display
 - MESTAR-P Series : LCD Display (Back Light version)
- Isolated Analog Output
 - Process : Measured value of pH or ORP
 - Temp.(Option) : Measured value of temperature
- Output of dry contact point at maximum & minimum setting
 - Dead-Band setting
- Data backup in the EEPROM
- Self-Diagnostic function
- Temperature compensation of measured pH value (Option)
- Full-duplex communication of RS-422 Multi Drop (Option)



◀ MESTAR-P | LCD Display

MESTAR-H | LED Display ▶



Specification

Specification	Performance
Measuring Range	0~4pH, -1999~1999 mV, -10~100°C
Resolution	0.01pH, 1mV, 0.1°C
Display	3 1/2 Digit LED or 3 1/2 Digit LCD
Analog Output	DC 4~20 mA 2 Channel (TEMP.Option)
Output of Dry Contact Point	Dry contact output of the two points operated by On/Off
Dimensions	96mm(W)x96mm(H)x131mm(D)

Specification	Performance
Self-Diagnostic function	Over measurement range - Err1 Calibration failure - Err2 System operation errors - Err3
Case	Anti-static ABS
Power Source	AC 110/220V 50/60Hz
Weight	780g

Standard Components of Set



Components	Qty
pH/ORP controller	1 Set
Electrode	1 Set
Connection box coated with special film	1 Set
High isolated special shield cable	20 m
Holder (PE)	1 Set
Bracket for holder	1 Set
KCl solution (3.3mol/123g)	1 packet
KCl bottle (500cc, PE)	1 EA
Beaker (500cc, PE)	1 EA
Calibration liquid bottle (500cc, PE)	2 EA
Standard buffer powder	each 2 packets
Instruction manual	1 book

※ Components of set are changed according to model codes.
 ※ Optional Items : Connection cable Quinhydrone powder, Holder, Stand Panel

Electrode Specification

Model	Use	Measuring range	Using Temp.	Cable length	Internal liquid	Code
GS-5	pH	0~14pH	0~40°C	4m	3.3mol KCl	1
GSH-5	pH	0~14pH	0~80°C	4m	3.3mol KCl	2
MS-5	ORP	±0~1999mV	0~40°C	4m	3.3mol KCl	3
GST-5	pH Temp. compensation	0~14pH	0~40°C	4m	3.3mol KCl	4
GSTH-5	pH Temp. compensation	0~14pH	0~80°C	4m	3.3mol KCl	5
GSA-5	pH Supplement free	0~14pH	0~80°C	4m	3.3mol KCl	6
GSTA-5	pH Temp. compensation & supplement free	0~14pH	0~80°C	4m	3.3mol KCl	7
HPB-13	pH for Fluoride, Temp. compensation & supplement free	0~14pH	0~80°C	4m	3.3mol KCl	8



Model Code

MESTAR

— **H** **S** **1**

Display

H : LED Display
P : LCD Display

Controller

S : Standard (No Option)
C : Communication
T : Temp. Compensation
X : Communication + Temp.Compensation

Electrode

0 : Without Electrode
1 : GS-5
2 : GSH-5
3 : MS-5
4 : GST-5
5 : GSTH-5
6 : GSA-5
7 : GSTA-5
8 : HPB-13



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