

Challenge to Pulseless Feed

SMOOTHY *Metering Pumps*

Diaphragm type **PKD**

Plunger type **PKP**





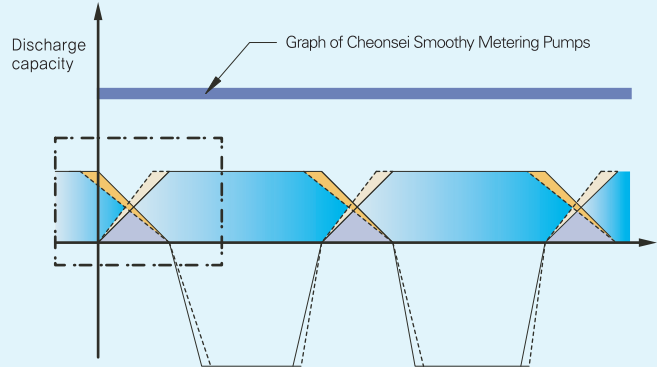
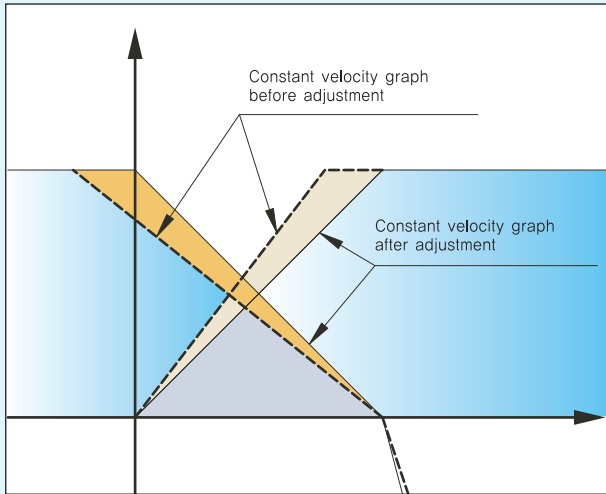
Challenge to Pulseless Feeds~

KEMPION Smoothy Metering Pumps have developed with Advanced Patent Technology

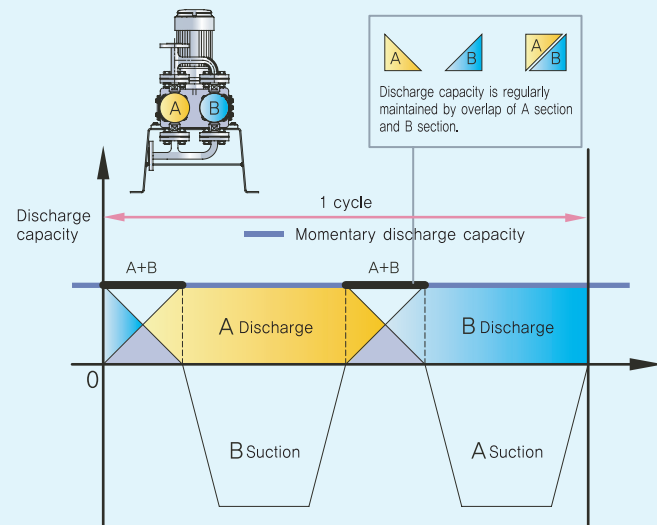
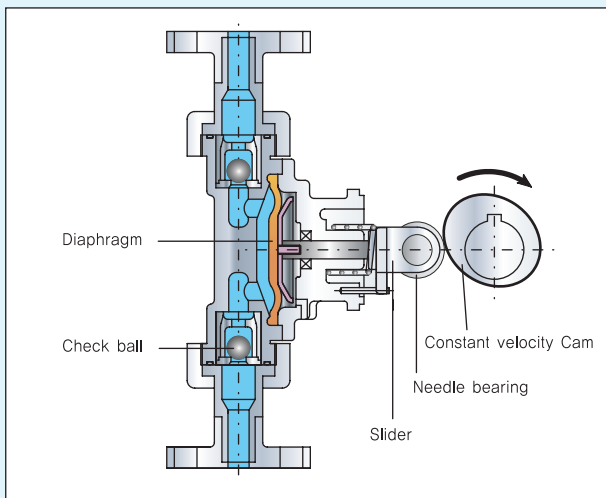
In general, metering pumps have advantages for high discharge pressure, fixed quantity, and corrosion resistance, but it could be restricted for use according to the process because it has characteristic arising pulsation in injection side caused by operating principle. Cheonsei has developed constant velocity cam which removes its characteristic radically, and has completed Smoothy Metering Pumps as patent technology for correction of constant velocity cam. It has acquired Certificate of New Excellent Product(NeP) and Excellent Performance Certification(EPC) by patent technology.

Patent Principle of adjustment for constant velocity Cam

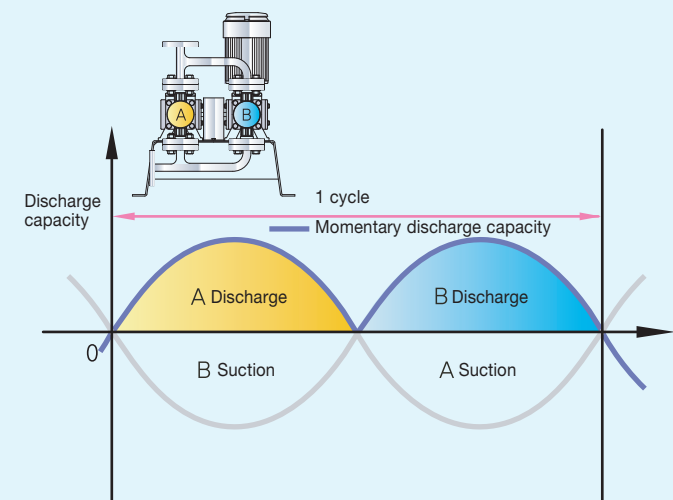
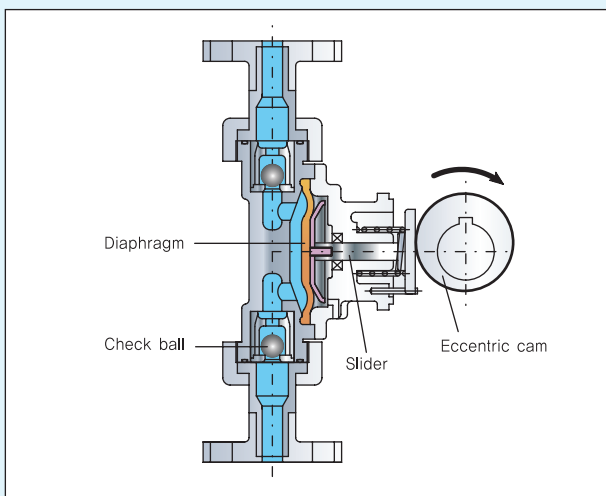
- Achievement of the best pulse rate through compensation graph for distorted phenomenon caused by change of contact points between cam and bearing.



Discharge waves of Cheonsei Smoothy Metering Pumps



Discharge waves of general Metering Pumps

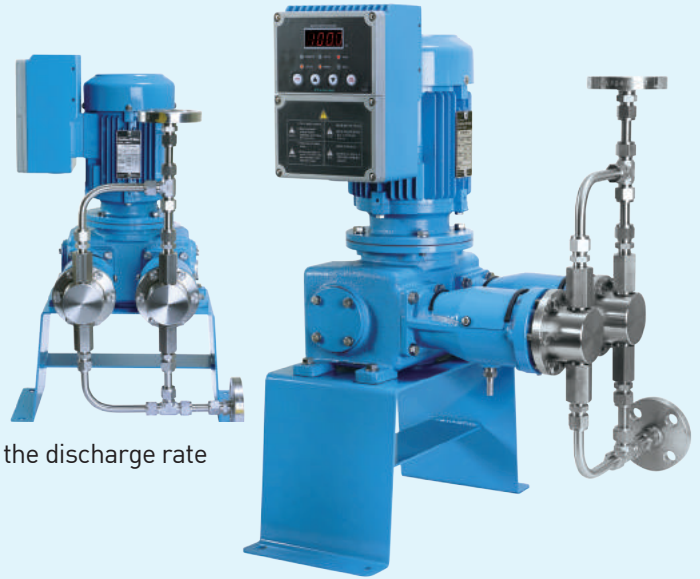


PKP Plunger type KEMPION Smoothy Metering Pumps

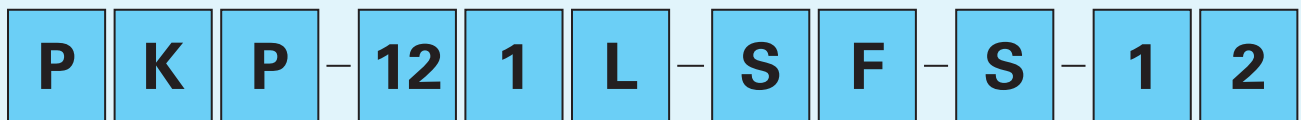
Automatic proportion remote control of discharge capacity by BLDC motor

BLDC motor which has excellent speed (discharge capacity) control ability has been installed

- Adjustment of precise injection under high pressure by double check valve type
- Increased confidence of discharge capacity by RPM Feedback 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 minimum 5% operation of full scale



Model Code



Series name
PULSELESS
METERING PUMPS

Plunger

Plunger Diameter
6/12/16/22/30/40/50

Driving Box Size
L: 0.55kW
M: 0.75kW

Stroke Number
1: 58spm
2: 116spm
(In case of "M" driving box size, 1:87spm)

Liquid End Material
S: Standard (SS316)
X: Other

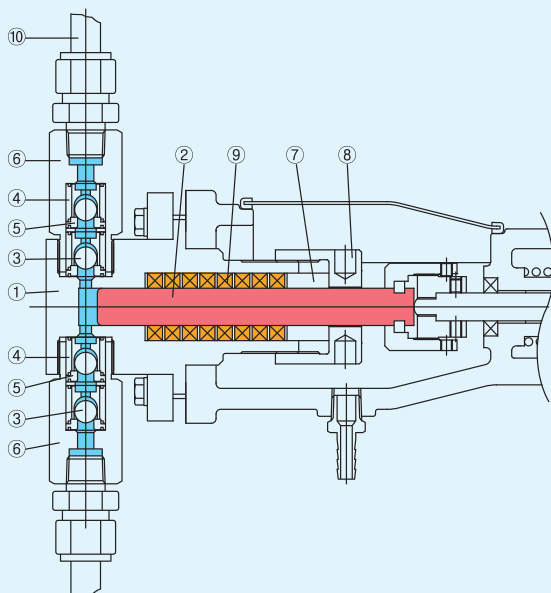
Power Supply (BLDC)
S: 3Ø, 380~480V
A: 1Ø, 3Ø, 200~240V
X: Special

Confluent Pipe
0: Excluded
1: Included
2: Included+ Relief Valve

Remote control type of discharge capacity
0: Excluded
1: Inverter
2: BLDC M/C UNIT (AUTO)
3: BLDC M/C UNIT (MANU)

Connection Type
F: Flange
X: Special

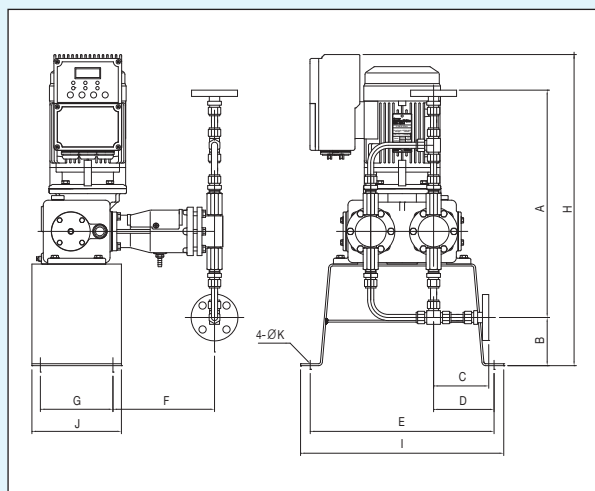
Standard Liquid End Material



NO.	Parts Name	Material
①	Head	SS316
②	Plunger	SS316 + CQ
③	Check Ball	SS316
④	Ball Guide	SS316
⑤	Ball Seat	SS316
⑥	Joint	SS316
⑦	Gland Ring	SS316
⑧	Gland Nut	SS316
⑨	Gland Packing	PTFE + ARAMID
⑩	Confluent Pipe	SS316

■ Dimensions

(Unit:mm)



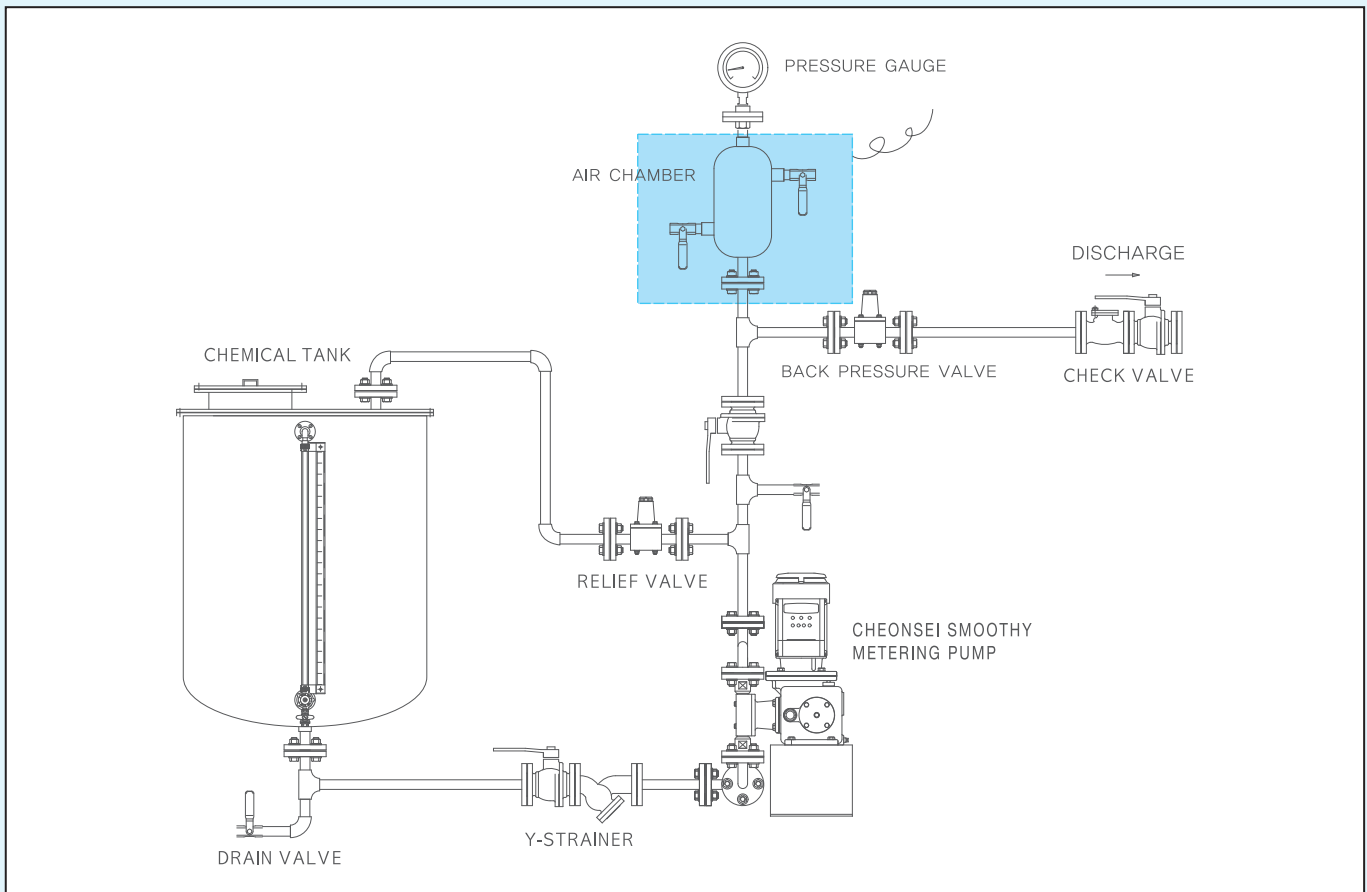
Model (PKP)	A	B	C	D	E	F	G	H	I	J	K
061L	441	114				199					
062L	441	114				199					
121L	441	114				202					
122L	441	114				202					
161L	465	102	117			209					
162L	465	102		125	380	209	150	643	420	185	12
221L	471	99				210					
222L	471	99				210					
301L	509	80				206					
302L	509	80	115			206					
061M	441	261				234					
121M	441	261				236					
161M	465	249	117			243					
221M	471	246		177	555	244	170	802	590	300	12
301M	509	227				240					
401M	547	211				240					
501M	581	195	121			241					

■ Standard Specifications

Specifications		PKP - Series																	
		061L	062L	121L	122L	161L	162L	221L	222L	301L	302L	061M	121M	161M	221M	301M	401M	501M	
Max. Capacity (mL/min)		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							
Max. Liquid Temp. (°C)		58	116	58	116	58	116	58	116	58	116	87							
Stroke Number (SPM)		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 : 500Ω below) 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 10K																	
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.

■ Ping Diaphragm 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 & Back Pressure Valve.



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

