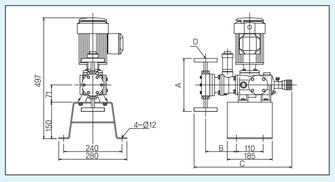
Dimension

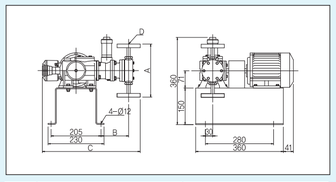
● KHV1-51S, 12S, 32S, 72S

(Unit:mm)



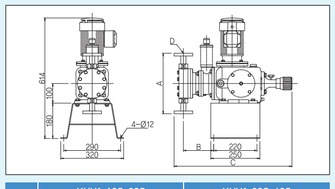
Model	KHV1-51S, 12S			KHV1-32S, 72S		
	PTC	FTC	STS	PTC	FTC	STS
A	202	202	208	202	202	218
B	127	127	125	127	127	127
C	402	402	400	402	402	402
D	15A			15A		

● KHH1-51S, 12S, 32S, 72S



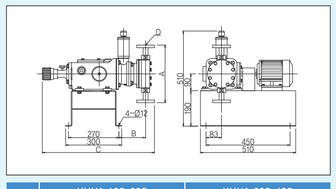
Model	KHH1-51S, 12S			KHH1-32S, 72S		
	PTC	FTC	STS	PTC	FTC	STS
A	202	202	208	202	202	218
B	113	113	111	113	113	113
C	402	402	400	402	402	402
D	15A			15A		

● KHV1-13S, 23S, 33S, 63S



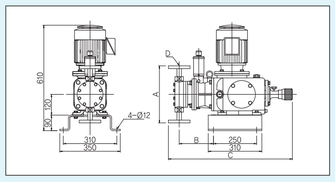
Model	KHV1-13S, 23S			KHV1-33S, 63S		
	PTC	FTC	STS	PTC	FTC	STS
A	330	322	308	320	316	330
B	159	159	155	162	162	157
C	603	603	599	621	621	616
D	15A			25A		

● KHH1-13S, 23S, 33S, 63S



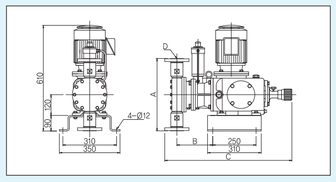
Model	KHH1-13S, 23S			KHH1-33S, 63S		
	PTC	FTC	STS	PTC	FTC	STS
A	330	322	308	320	316	330
B	147	147	143	150	150	145
C	603	603	599	621	621	616
D	15A			25A		

● KHV1-33HS, 63HS



Model	KHV1-33HS, 63HS		
	PTC	FTC	STS
A	320	316	330
B	203	203	198
C	723	723	718
D	25A		

● KHV1-14S, 24S



Model	KHV1-14S, 24S		
	PTC	FTC	STS
A	420	422	418
B	211	211	207
C	738	738	734
D	40A		

Precautions for Installation

General Metering Pumps are reciprocating motion type utilizing the eccentric cam and return spring and pulsations happen in the suction and the discharge piping during operation as one of characteristics in this kind of reciprocating motion type pumps. Therefore, special countermeasures are required in order to prevent cause of break down and please carefully refer to the followings for the purpose of effectiveness operation.

Prevention of vibration in piping

Acceleration head means shock wave caused by pulsation at the moment entering discharge cycle. This is particular characteristics of reciprocating motion type pumps that is generated as result of sudden acceleration. Countermeasure to this phenomenon should be taken to protect the pump and piping from sever vibration.

Countermeasure : Install pulsation damping device(Air Chamber) /
Reduce length of discharge piping & Enlarge diameter of discharge piping

Prevention of Over Feeding

Over Feeding means the excessive discharge flow due to malfunction of check valve caused by pulsation of the liquid in piping. If the differential pressure of pump between suction side & discharge side is below 0.3 bar and the discharge piping is long, check the occurrence of overfeeding carefully.

Countermeasure : Install pulsation damping device(Air Chamber) / Install Back Pressure Valve

When placing Order

In order to provide the most suitable pump, please provide the following information.

1. Specification of Liquid

(1) Liquidname
(2) Ingredients
(3) Concentration
(4) Temperature
(5) Viscosity
(6) Specific Gravity

2. Conditions of installation

(1) Process of use
(2) Required discharge volume
(3) Suction side piping
(4) Discharge side piping
(5) Power source
(6) Ambient temperature
(7) Installating location & Mounting method
(8) Operating condition

3. Other

· Desired delivery date and place
· Any other requirements

CSCE - B - 05
2020. 02

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KEMPION

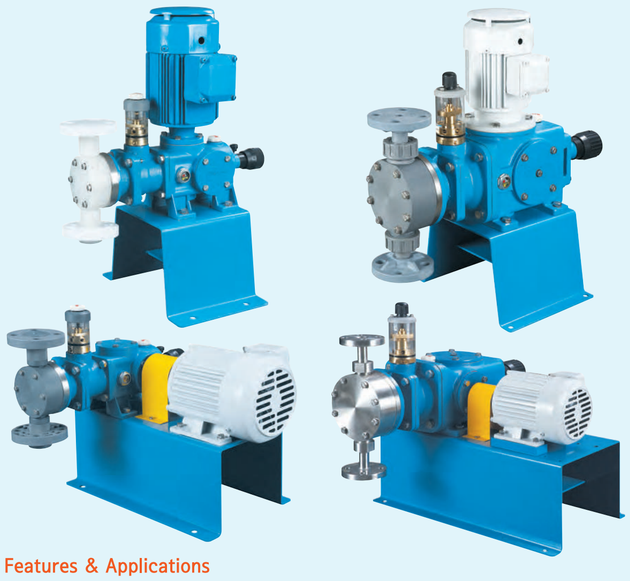
ISO 9001 Certified Company KAB-QC-18

HYDRULIC DIAPHRAGM Metering Pumps



KH Series

KEMPION Hydraulic Diaphragm Metering Pumps

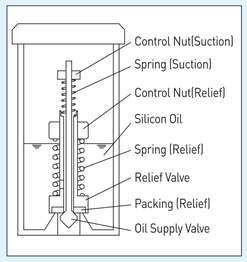


Features & Applications

- 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.

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 will resumes to normal operational status when the abnormal pressure is removed. Working Oil Pressure can be easily adjusted by Control Nut.



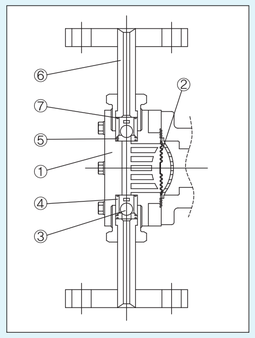
Model Code

①	②	③		④		⑤a	⑤b	⑥		⑦a	⑦b	⑦c		⑧	⑨
KH	V	1	–		–	3	3	S	–	P	T	C	–	F	S

① **Series**	KH : Hydraulic Diaphragm Metering Pumps
② **Construction**	V : Vertical H : Horizontal
③ **Head Number**	1 : Single 2 : Duplex
④ **Option**	No mark : None A : BLDC M/C UNIT C : RPM UNIT D : Inverter UNIT E : Air Relief Valve
⑤ **Nominal Capacity**	a× 10^{1} → 3× 10^{3} =3000(mL/min)
⑥ **Diaphragm Number**	S : Single D : Double ※ (Under development now)
⑦ **Liquid End Material**	a : Head Material (P : PVC F : PVDF S : STS304 6 : STS316 X : Special) b : Diaphragm Material (T : PTFE X : Special) c : Check ball Material (C : CERAMIC S : STS316 6 : STS316 X : Special)
⑧ **Connection**	F : Flange X : Special
⑨ **Power Supply**	S : 3Ø 220/380V 60Hz A : 3Ø 440V 60Hz X : Special

Note) 1. In case of Duplex Head, discharge capacity is twice of nominal capacity.
(For example, in case of KHV2-33S, discharge capacity is 6000mL/min)
2. In case of over Triplex Head, please contact sales engineer or distributor.

Liquid End Material



No.	Code / Part Name	PTC 51-72	PTC 13-24	FTC	STS	6T6
①	Head	PVC		PVDF	STS304	STS316
②	Diaphragm	PTFE		PTFE	PTFE	PTFE
③	Check Ball	CERAMIC		CERAMIC	STS316	STS316
④	Ball Guide	PP	PVC	PVDF	STS304	STS316
⑤	Ball Seat	FKM	PVC	PTFE	STS304	STS316
⑥	Joint	PVC		PVDF	STS304	STS316
⑦	O-ring/Packing	FKM		PTFE	PTFE	PTFE

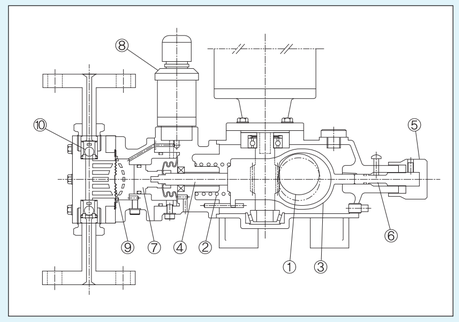
Note) 1. Materials other than standard can be used specially, if the customer request. Please contact to sales engineer or distributor.
2. All the information mentioned above may be revised for improvement without prior notice.

Specifications

Model \ Spec.	Max.Capacity (mL/min) 50Hz	Max.Capacity (mL/min) 60Hz	Max.Discharge Pressure(bar) PTC· FTC	Max.Discharge Pressure(bar) STS	Stroke Frequency (SPM) 50Hz	Stroke Frequency (SPM) 60Hz	Dia. of Piston (mm)	Stroke Length (mm)	Connection (STS)	Motor (kW)	Weight(kg) Vert./Hori. (STS)
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			20/22.5
KH-32	300	360	10	25	48	58	30	10			
KH-72	600	720	10	20	96	116	30	10			
KH-13	915	1100	10	20	48	58	40	17.5		0.4	61.5/67
KH-23	1830	2200	10	15	96	116	40	17.5			
KH-33	2830	3400	10	12	48	58	68	17.5	KS 10K 25A		63/68.5
KH-63	5660	6800	7	7	96	116	68	17.5			
KH-33H	2830	3400	10	20	48	58	68	17.5	KS 20K 25A	0.75	84
KH-63H	5660	6800	10	14	96	116	68	17.5			
KH-14	8750	10500	8	8	48	58	122	17.5	KS 10K 40A		98
KH-24	17500	21000	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 ± 1%F.S. and linearity is ± 2%F.S.
6. The Munsell No. of painting is 0.6PB 4.8/10.6 except motor (motor is manufacturer's standard).

Pump Structure & Main Parts



No.	Part Name
①	Worm Wheel Shaft
②	Spring
③	Slider
④	Slider Shaft
⑤	Dial
⑥	Dial Shaft
⑦	Piston
⑧	Hydraulic Regulator
⑨	Diaphragm
⑩	Check Ball