

**KEMPION**

ISO9001



# **HYDRAULIC BYPASS** *Metering Pumps*

## **BKH**

For Safety & Precise Injection of Chemical  
Designed & manufactured by API675 Standard



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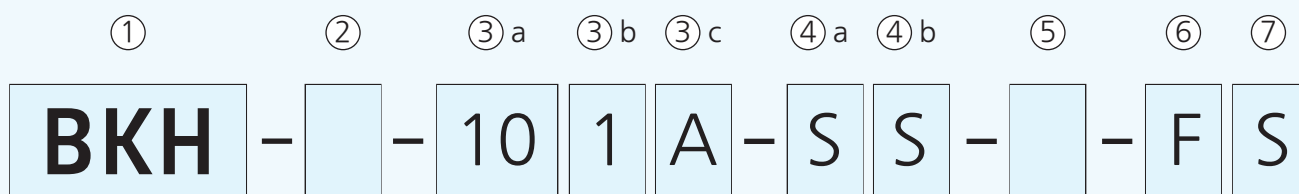


## BKH Series

# Hydraulic Bypass Metering Pumps

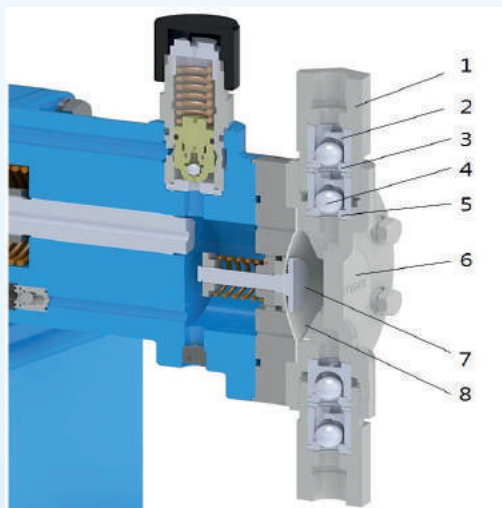
- High-pressure injection up to 130bar
- Adjustable precise injection up to 25L/min
- Outstanding durability under long continuous operation
- Applicable to various water treatments and chemical processes requiring high precision quantitative flow rate or operation under high pressure
- Alarm signal is promptly transmitted by detection sensor, when diaphragm is damaged
- Manual Control and Remote Control by SERVO UNIT & BLDC Motor
- Designed and manufactured by API675 Standard

## Model Code



- ① Series                      BKH (Hydraulic Bypass Metering Pumps)
- ② Control Option            No mark : Manual, A : BLDC M/C UNIT, B : SERVO UNIT
- ③ Type                        a. Plunger (10, 15, 22, 32, 42, 55, 70)  
b. Gear ratio (1, 2, 3, 4)  
c. Driving box size (A, B, C, D)
- ④ Liquid End Material      a. Head (P : PVC, F : PVDF, S : SS316, X : Special)  
b. Check Ball (C : CERAMIC, S : SS316, X : Special)
- ⑤ Liquid End Option        No mark : None, 1 : Diaphragm damage detection device
- ⑥ Connection                F : Flange, T : Thread, X : Special
- ⑦ Power supply              S : 3 $\phi$  220/380V, A : 3 $\phi$  440V, X : Special

## Liquid End Material



NO	Material Part Name	PC		FC	SS
		10, 15	22~70		
1	Joint	PVC		PVDF	STS316
2	Ball Guide	PP	PVC	PVDF	SSC14A
3	Ball Seat	FKM	PVC	PTFE	STS316
4	Check Ball	CERAMIC		CERAMIC	STS316
5	Gasket	FKM		PTFE	PTFE
6	Head	PVC		PVDF	SSC14A
7	Diaphragm Support	SSC14A (ETFE Coating)		SSC14A (ETFE Coating)	SSC14A
8	Diaphragm	PTFE		PTFE	PTFE

## Option for Automatic Control & Liquid End Part



### BLDC MOTOR

- RPM speed control
- Remote proportional control by 4 ~ 20mA signal
- Free of worry about motor damage during low speed operation



### SERVO UNIT

- Automatic control of Stroke length
- Remote proportional control by 4 ~ 20mA signal



### Diaphragm damage detection device

- Promptly detect diaphragm damage and generate(display) Alarm signal & stop the system

## ■ Structure & Function of Pump

### Reducer

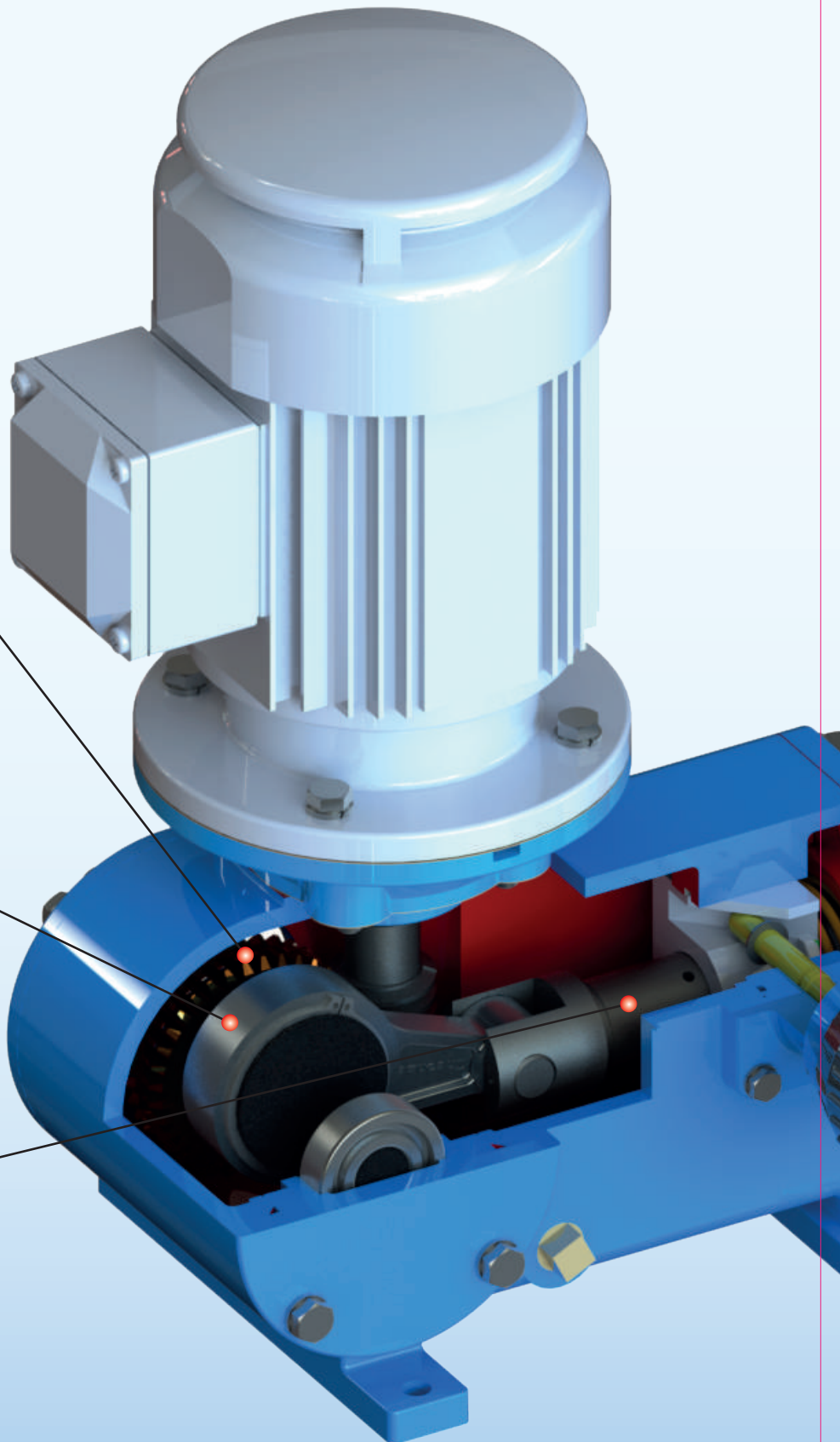
The rotation of the Motor is reduced by Worm Gear and gets the high torque.

### Eccentric device

As Crank System, it change rotation motion to reciprocation motion and it is characterized by high durability.

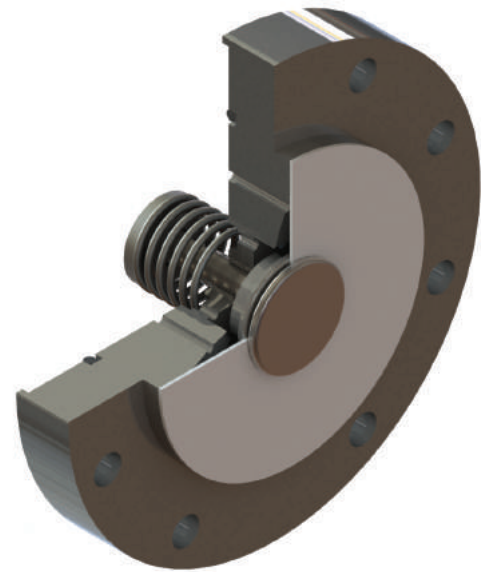
### Rod

While Rod is reciprocating, Hydraulic Oil is flowed into Driving Part and discharged to Oil Chamber through Bypass Hole and Hydraulic Oil makes suction & discharge of pump as Piston principle.



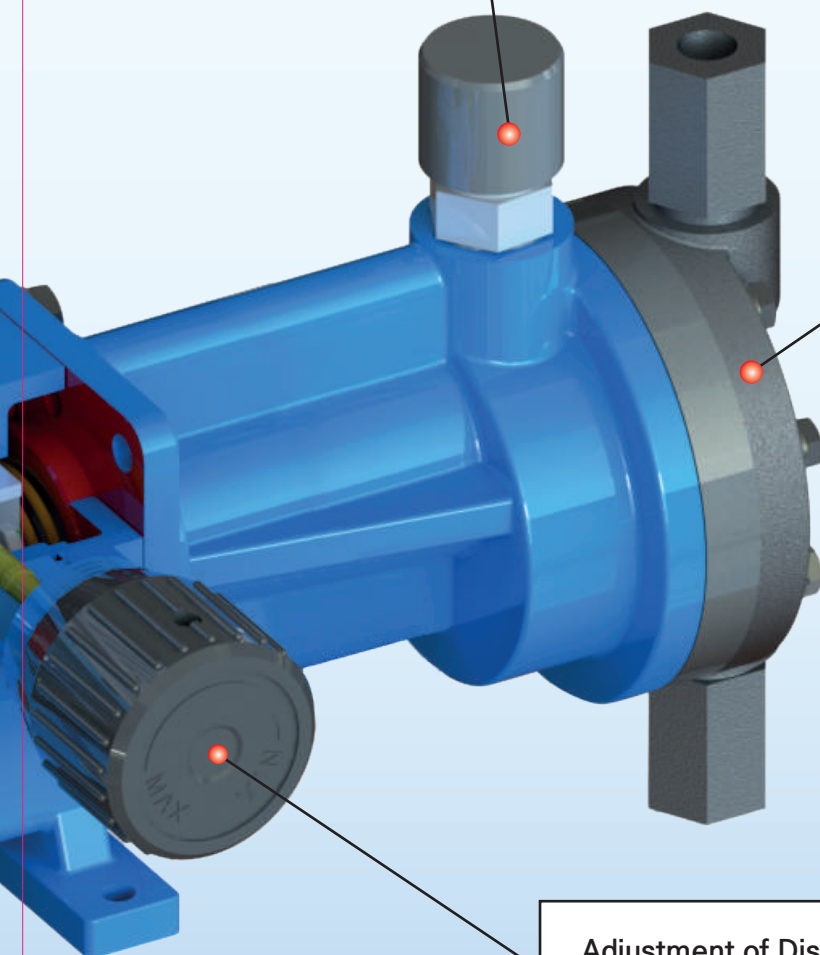
### Hydraulic Regulator (Relief Valve + Auto Air Vent Valve)

Relief Valve prevents pump damage, when abnormal pressure occurs during operation. Air Vent Valve discharges a certain amount of Hydraulic Oils & bubbles every stroke.



### Diaphragm

Hydraulic pressure makes forward motion of Diaphragm. Return spring makes backward motion of Diaphragm and it makes stable pumping.



### Adjustment of Discharge Flow

By dial adjustment, open & close section of Bypass Hole is controlled and volume of hydraulic oil is changed. Diaphragm momentum and discharge flow are controlled according to this variation in amount of hydraulic oil.

## ■ Specifications (Gear Ratio A,B)

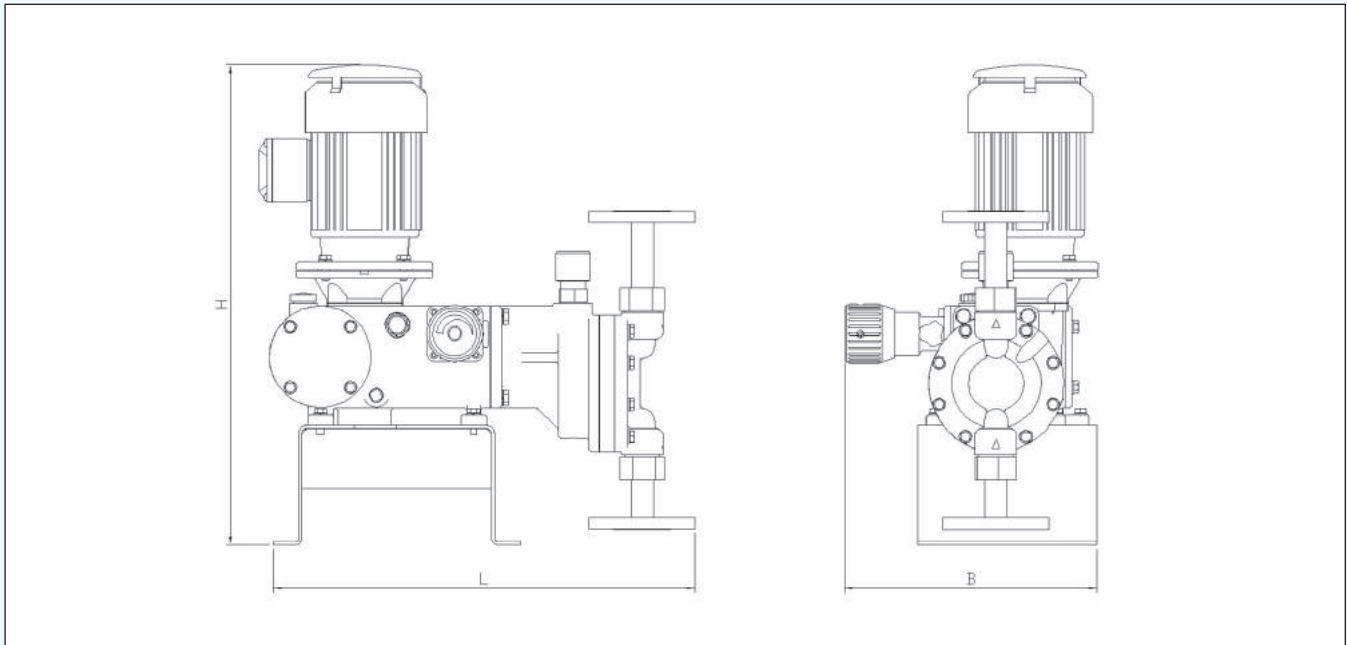
Model	Max. Capacity [L/h , (mL/min)]				Max. Discharge Pressure (bar)		Stroke Frequency (SPM)		Weight (Kg)	Motor
	50Hz		60Hz		PVC•PVDF	SS316	50Hz	60Hz		
	PVC•PVDF	SS316	PVC•PVDF	SS316						
BKH-101A	1.8 (30)	0.9 (15)	2.4 (40)	1.2 (20)	15	110	40	48	36	0.2
BKH-102A	4.8 (80)	3.3 (55)	6.0 (100)	4.2 (70)	15	100	80	97		
BKH-103A	7.8 (130)	6.9 (115)	9.6 (160)	8.4 (140)	15	90	120	145		
BKH-104A	9.9 (165)	9.0 (150)	12.0 (200)	10.8 (180)	15	80	160	193		
BKH-151A	6.0 (100)	4.5 (75)	7.2 (120)	5.4 (90)	15	70	40	48	36	
BKH-152A	13.5 (225)	9.9 (165)	16.2 (270)	12.0 (200)	15	50	80	97		
BKH-153A	20.4 (340)	18.3 (305)	24.6 (410)	22.2 (370)	15	40	120	145		
BKH-154A	26.4 (440)	21.9 (365)	31.8 (530)	26.4 (440)	15	35	160	193		
BKH-221A	15.0 (250)	14.4 (240)	18.0 (300)	17.4 (290)	15	32	40	48	38	
BKH-222A	31.8 (530)		38.4 (640)		15	23	80	97		
BKH-223A	47.4 (790)		57.0 (950)		15	19	120	145		
BKH-224A	62.4 (1040)		75.0 (1250)		15	16	160	193		
BKH-321A	33.0 (550)		39.6 (660)		15	15	40	48	40	
BKH-322A	67.8 (1130)		81.6 (1360)		11	11	80	97		
BKH-323A	102.3 (1705)		123.0 (2050)		9	9	120	145		
BKH-324A	135.0 (2250)		162.0 (2700)		8	8	160	193		
BKH-101B	3.9 (65)	1.5 (25)	4.8 (80)	1.8 (30)	15	120	40	48	48	0.4
BKH-102B	8.4 (140)	5.1 (85)	10.2 (170)	6.0 (100)	15	120	80	97		
BKH-103B	12.9 (215)	9.3 (155)	15.6 (260)	10.8 (180)	15	110	120	145		
BKH-104B	17.4 (290)	12.3 (205)	21.0 (350)	15.0 (250)	15	100	160	193		
BKH-151B	10.5 (175)	8.4 (140)	12.6 (210)	10.2 (170)	15	100	40	48	48	
BKH-152B	21.3 (355)	19.5 (325)	25.8 (430)	23.4 (390)	15	70	80	97		
BKH-153B	32.4 (540)	27.9 (465)	39.0 (650)	33.6 (560)	15	58	120	145		
BKH-154B	40.8 (680)	36.9 (615)	49.2 (820)	44.4 (740)	15	50	160	193		
BKH-221B	24.0 (400)	22.8 (380)	28.8 (480)	27.6 (460)	15	46	40	48	51	
BKH-222B	47.4 (790)	46.5 (775)	57.0 (960)	55.8 (930)	15	34	80	97		
BKH-223B	72.0 (1200)	69.9 (1165)	86.4 (1440)	84.0 (1400)	15	27	120	145		
BKH-224B	97.5 (1625)		177.0 (1950)		15	23	160	193		
BKH-321B	49.8 (830)		60.0 (1000)		15	22	40	48	52	
BKH-322B	102.3 (1705)		123.0 (2050)		15	16	80	97		
BKH-323B	152.4 (2540)		183.0 (3050)		13	13	120	145		
BKH-324B	204.9 (3415)		246.0 (4100)		11	11	160	193		
BKH-421B	90.0 (1500)		108.0 (1800)		13	13	40	48	54	
BKH-422B	180.0 (3000)		216.0 (3600)		9	9	80	97		
BKH-423B	270.0 (4500)		324.0 (5400)		7	7	120	145		
BKH-424B	360.0 (6000)		432.0 (7200)		6	6	160	193		

## ■ Specifications (Gear Ratio C,D)

Model	Max. Capacity [L/h , (mL/min)]				Max. Discharge Pressure (bar)		Stroke Frequency (SPM)		Weight (Kg)	Motor	
	50Hz		60Hz								
	PVC-PVDF	SS316	PVC-PVDF	SS316	PVC-PVDF	SS316	50Hz	60Hz			
BKH-151C	12.3 (205)	9.9 (165)	15.0 (250)	12.0 (200)	15	130	40	48	70	0.75	
BKH-152C	24.9 (415)	21.3 (355)	30.0 (500)	25.8 (430)	15	120	80	97			
BKH-153C	39.0 (650)	34.8 (580)	46.8 (780)	42.0 (700)	15	95	120	145			
BKH-154C	52.5 (875)	48.3 (790)	63.0 (1050)	57.0 (950)	15	85	160	193			
BKH-221C	30.0 (500)	27.0 (450)	36.0 (600)	32.4 (530)	15	80	40	48	73		
BKH-222C	60.0 (1000)	54.9 (915)	72.0 (1200)	66.0 (1100)	15	55	80	97			
BKH-223C	87.3 (1455)	82.5 (1375)	108.0 (1800)	99.0 (1650)	15	45	120	145			
BKH-224C	120.0 (2000)	112.5 (1875)	144.0 (2400)	135.0 (2250)	15	40	160	193			
BKH-321C	62.4 (1040)	60.0 (1000)	75.0 (1250)	72.0 (1200)	15	36	40	48	74		
BKH-322C	124.8 (2080)		150.0 (2500)		15	26	80	97			
BKH-323C	187.5 (3125)		225.0 (3750)		15	21	120	145			
BKH-324C	250.0 (4165)		300.0 (5000)		15	18	160	193			
BKH-421C	107.4 (1790)		129.0 (2150)		15	21	40	48	77		
BKH-422C	219.9 (3665)		264.0 (4400)		15	15	80	97			
BKH-423C	330.0 (5500)		396.0 (6600)		12	12	120	145			
BKH-424C	435.0 (7250)		522.0 (8700)		11	11	160	193			
BKH-551C	184.8 (3080)		222.0 (3700)		13	13	40	48	82		
BKH-552C	375.0 (6250)		450.0 (7500)		9	9	80	97			
BKH-553C	564.9 (9415)		678.0 (11300)		7	7	120	145			
BKH-554C	765.0 (12750)		918.0 (15300)		6	6	160	193			
BKH-221D	40.0 (665)	31.5 (525)	48.0 (800)	37.8 (630)	15	130	48	58	82		1.5
BKH-222D	79.8 (1330)	72.3 (1205)	96.0 (1600)	87.0 (1450)	15	95	96	116			
BKH-223D	120.0 (2000)	114.9 (1915)	144.0 (2400)	138.0 (2300)	15	80	144	174			
BKH-321D	87.3 (1455)	82.5 (1375)	105.0 (1750)	99.0 (1650)	15	65	48	58			
BKH-322D	174.9 (2915)	169.8 (2830)	210.0 (3500)	204.0 (3400)	15	45	96	116	83		
BKH-323D	262.5 (4375)	255.0 (4250)	315.0 (5250)	306.0 (5100)	15	38	144	174			
BKH-421D	150.0 (2550)	144.9 (2415)	180.0 (3000)	174.0 (2900)	15	36	48	58	85		
BKH-422D	294.9 (4915)		354.0 (5900)		15	26	96	116			
BKH-423D	435.0 (7250)		522.0 (8700)		15	22	144	174			
BKH-551D	249.9 (4165)		300.0 (5000)		15	22	48	58			
BKH-552D	510.0 (8500)		612.0 (10200)		15	15	96	116	92		
BKH-553D	774.9 (12915)		930.0 (15500)		13	13	144	174			
BKH-701D	420.0 (7000)		504.0 (8400)		14	14	48	58	95		
BKH-702D	849.9 (14165)		1020.0 (17000)		10	10	96	116			
BKH-703D	1290.0 (21500)		1548.0 (25800)		8	8	144	174			

- Note) 1. Maximum capacity is tested under standard status(room temperature, clean water)  
2. Effective control range of flow rate is 10 ~ 100%, Precision is  $\pm 1\%$ FS, and linearity is  $\pm 3\%$ FS.  
3. Weight is based on flange(SS316 Type) connection & standard motor.  
4. Ambient temperature limit is 0 ~ 40 °C.  
5. The limits of liquid temperature are 0~50°C for PVC and 0~80°C for PVDF & SS316.  
6. The Munsell No. of painting is 0.6PB 4.8/10.6 except motor(The color of motor is maker's standard).  
7. Specifications can be changed for improvement without prior notice.

## ■ Connection Standard & Dimension



Model	Connect			Size (mm)		
	PVC·PVDF	SS316		SS316		
	Flange	Thread	Flange(Suction / Discharge)	L	B	H
BKH-10□A	KS 10K 15A	Rc1/4	KS 10K 15A / KS 63K 15A	433	243	523
BKH-15□A	KS 10K 15A	Rc3/8	KS 10K 15A / KS 40K 15A	422		
BKH-22□A	KS 10K 15A	Rc1/2	KS 10K 15A / KS 20K 15A	427		
BKH-32□A	KS 10K 20A	Rc3/4	KS 10K 20A	434		
BKH-10□B	KS 10K 15A	Rc3/8	KS 10K 15A / KS 63K 15A	473	297	564
BKH-15□B	KS 10K 15A	Rc1/2	KS 10K 15A / KS 40K 15A	472		
BKH-22□B	KS 10K 15A	Rc1/2	KS 10K 15A / KS 20K 15A	470		
BKH-32□B	KS 10K 20A	Rc3/4	KS 10K 20A / KS 20K 20A	477		
BKH-42□B	KS 10K 25A	Rc1	KS 10K 25A	495	388	684
BKH-15□C	KS 10K 15A	Rc1/2	KS 10K 15A / KS 63K 15A	582		
BKH-22□C	KS 10K 15A	Rc1/2	KS 10K 15A / KS 40K 15A	594		
BKH-32□C	KS 10K 20A	Rc3/4	KS 10K 20A / KS 20K 20A	592		
BKH-42□C	KS 10K 25A	Rc1	KS 10K 25A / KS 20K 25A	607	398	733
BKH-55□C	KS 10K 25A	Rc1	KS 10K 25A	631		
BKH-22□D	KS 10K 15A	Rc1/2	KS 10K 15A / KS 63K 15A	617		
BKH-32□D	KS 10K 20A	Rc3/4	KS 10K 20A / KS 30K 20A	622		
BKH-42□D	KS 10K 25A	Rc1	KS 10K 25A / KS 20K 25A	627	398	733
BKH-55□D	KS 10K 25A	Rc1	KS 10K 25A / KS 20K 25A	651		
BKH-70□D	KS 10K 40A	Rc1½	KS 10K 40A	693		

※ The dimension and Specifications can be changed for improvement without prior notice.