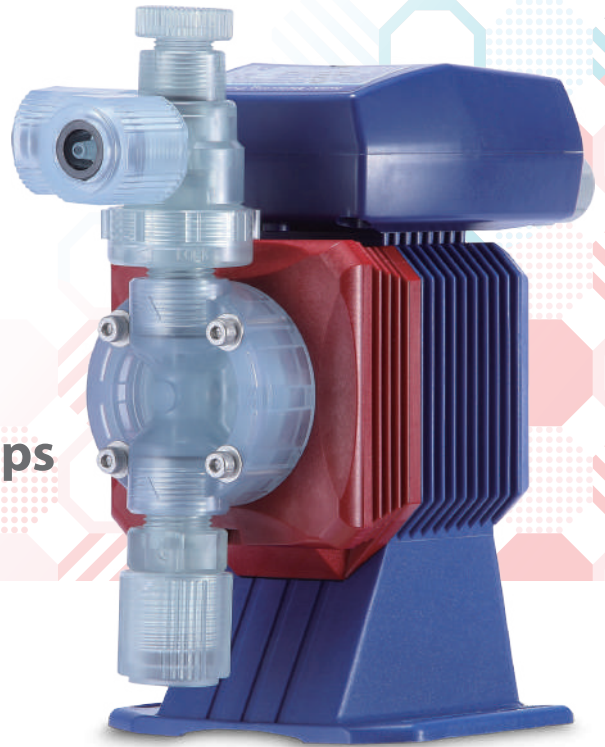




Electromagnetic Metering Pumps **EHN**

Extensive Product Range
Highly Reliable, Best Selling Pumps



The Heart of Industry

The Latest Electromagnetic Metering Pump Equipped with Digital Controller & Universal Voltage





Pump Head Variation

Wide variety of standard pump head (VC/VS/PC/PS/PP/FC/SH), automatic air vent type (NAE), high compression type (55) and high pressure type (H).

• Refer to page 7 for details of NAE, 55 and H.



VC/VS type



PC/PS/PP type



FC type



SH type

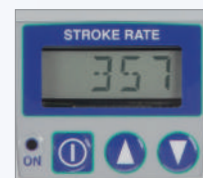


High Resolution

Thanks to digitized controller, stroke speed can be adjusted by 1 spm step from 1 to 360 spm. Combined with stroke length adjustment, you can do the fine adjustment from very small flow to maximum flow rate.



Stroke length adjusting dial



Control panel



Control Unit

The highly-functional EHN-YN which is equipped with digital and analog inputs is added to the standard product line as well as EHN-R.



Universal Voltage

Universal voltage power source from 100 - 240VAC for all models. You are now free from worrying about power voltage.



Air Vent Valve

Standard pump head models (VC/VS/PC/PS/PP) equip air vent valve. Air in the pump chamber can be easily released by turning knob.



Water / Dust-Proof

Each unit such as driving unit and control unit is sealed to make the pump IP66 equivalent water/dust-proof.

• Do not install pump outdoor.



Multi Hose Connection

The use of a new hose stopper eliminates a twist in tubing.

• Except for the following

Wet end material: FC type, SH type

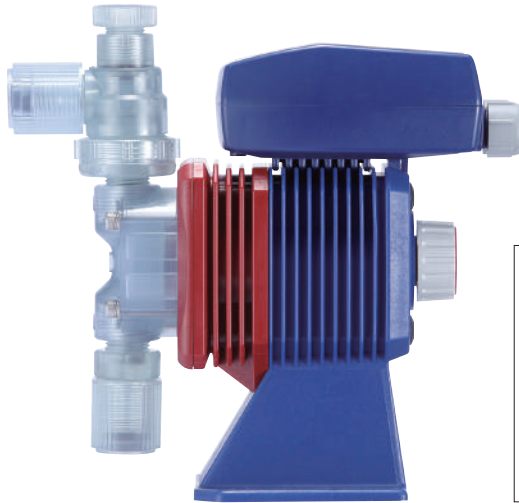
Accessories: Check valve CS type, Backflow prevention valve CV type, Back pressure valve, Flow checker

Digital Controller with Multifunctions

Standard type

EHN-R Series

- Key lock function prevents erroneous operation after controller programming.
- The mounted controller provides EXT and STOP functions. Multiply and Dividing operations become available by EXT functions and allow you to delicate pump control.



Controller Functions

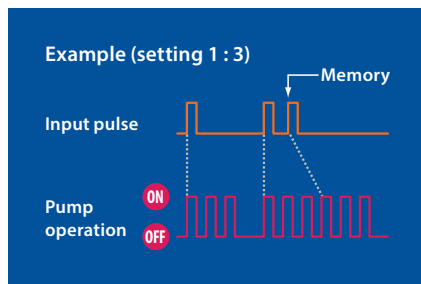
Manual operation

Pump run/stop and stroke rate setting (1 to 360 spm) can be done by keys. Stroke rate can be set either when pump is running or stopped.

EXT operation

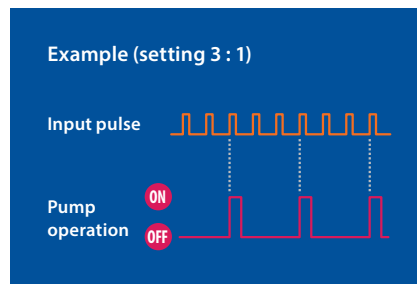
Multiply (1 : n)

Pump makes multiply operation by external pulse signal. Pump makes "n" times shots against one pulse signal input. "n" can be set from 1 to 999. Pulses which came while operation are put in memory up to 64535 shots.



Dividing (n : 1)

Pump makes dividing operation by external pulse signal. Pump makes one shot against "n" times pulse input. "n" can be set from 1 to 999.

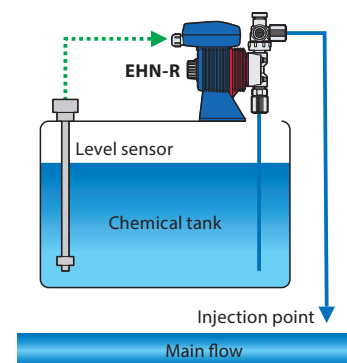


- If "n" is set at 1, pump makes synchronous operation. If pump is connected to optionally available EH controller, please use this function.

STOP function

Pump stops by external contact signal. Pump operates when stop signal input is released. This function enables pump ON/OFF control. This is convenient function when used in combination with level sensor.

- It is possible to operate pump while STOP signal comes in (Change over with keys). In this case, when pump is operated in EXT mode, pump operates synchronous with EXT signal input while STOP signal is coming in.



Level sensor watches water level in tank, and stops pump when water level comes to lower limit.

Advanced type EHN-YN Series

- The features of both the EHN-Y and the FCM flow checker are integrated into the EHN-YN.
- Auxiliary functions including key lock and priming operation (max operation with the up and down keys depressed) are provided to support users.
- The FCM flow checker is optionally available.
The pump gives an alarm and starts running at full speed(360spm), removing entrained air or clogging, when the FCM does not detect a suction line flow. Operation at a set speed or programmed behaviour will be restored after the problems are removed.
The following three behavioural patterns are available.
PA mode/PA+AL mode/PA+AL+RE mode
Monitoring/alarming a suction-line flow ensures safer pump operation.



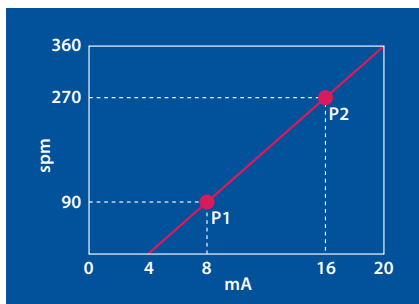
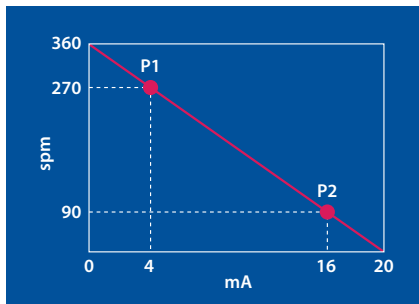
Controller Functions

Manual operation

Pump run/stop and stroke rate setting (1 to 360 spm) can be done by keys. Stroke rate can be set either when pump is running or stopped.

Analog input operation

Proportional control of spm by programming 2 points between 0-20mA.



EXT operation

Multiply (1 : n)

Pump makes multiply operation by external pulse signal. Pump makes "n" times shots against one pulse signal input. "n" can be set from 1 to 999. Pulses which came while operation are put in memory up to 65535 shots.

Dividing (n : 1)

Pump makes dividing operation by external pulse signal. Pump makes one shot against "n" times pulse input. "n" can be set from 1 to 999.

- If "n" is set at 1, pump makes synchronous operation. If pump is connected to optionally available EH controller, please use this function.

STOP function

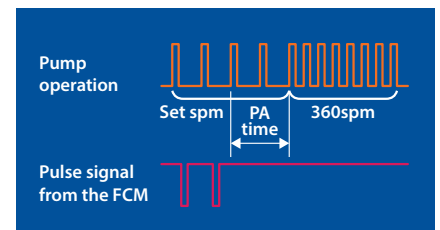
Pump stops by external contact signal. Pump operates when stop signal input is released. This function enables pump ON/OFF control. This is convenient function when used in combination with level sensor.

- It is possible to operate pump while STOP signal comes in (Change over with keys). In this case, when pump is operated in EXT mode, pump operates synchronous with EXT signal input while STOP signal is coming in.

Auto restoration

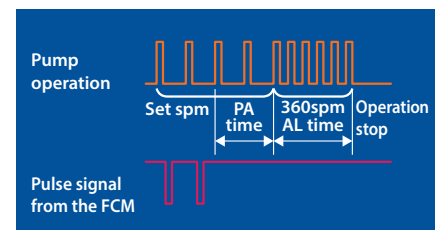
PA mode

When the FCM does not detect a suction-line flow for the PA time, the pump starts to run at full speed (360spm).



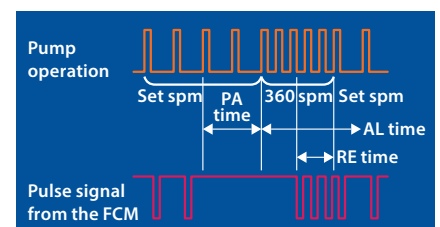
PA+AL mode

When the FCM does not detect a suction-line flow for the PA time, the pump starts to run at full speed (360spm) for the AL time and stops afterward.



PA+AL+RE mode

When the pump starts to run at full speed (360spm) for the AL time and the FCM keeps detecting a suction-line flow over the RE time, operation at a set speed or programmed behaviour will be restored.



Technical Data

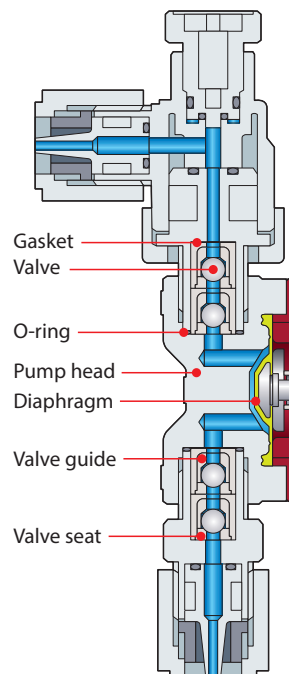
Wet End Materials (VC/VS/PC/PS/PP)

Material code	VC	VS	PC	PS	PP
Pump head	PVC		GFRPP		
Valve	Alumina ceramic	SUS316 equivalent	Alumina ceramic	SUS316 equivalent	Alumina ceramic
Valve seat	FKM	EPDM	FKM	EPDM	PCTFE
Valve guide	PVC		GFRPP		
Gasket	PTFE				
O-ring	FKM	EPDM	FKM	EPDM	FKM
Diaphragm	PTFE+EPDM (EPDM of diaphragm is not wet end.)				

Wet End Materials (FC/SH)

Material code	FC	SH
Pump head	PVDF	SUS316
Valve	Alumina ceramic	HASTELLOY® C276 equivalent
Valve seat	PCTFE	SUS316
Valve guide	PVDF	SUS316
Gasket	PTFE	
O-ring	-	
Diaphragm	PTFE+EPDM (EPDM of diaphragm is not wet end.)	

PVC: Transparent polyvinyl chloride
 GFRPP: Glass fiber reinforced polypropylene
 FKM: Fluor rubber
 EPDM: Ethylene propylene rubber
 PCTFE: Polychlorotrifluoroethylene
 PTFE: Polytetrafluoroethylene
 PVDF: Poly vinylidene fluoride



Model Identification (VC/VS/PC/PS/PP)

EHN			-	BN	11	VC	M	K	R	-	NAE	-	HC
1				2	3	4	5	6	7		8		9
1 Pump series EHN Series			4 Wet end materials VC, VS, PC, PS, PP			7 Controller R : Standard type YN : Advanced type							
2 Drive unit (Average power consumption) BN : 20W CN : 24W			5 Connection M : Multi hose connection 1/2 : Outlet/Airvent: Ø4×Ø9, Inlet: Ø4×Ø6 ^{Note} Note: EHN-H only			8 Optional configuration NAE : Automatic air vent type 55 : High compression head type H : High pressure type							
3 Effective diaphragm diameter 11 : 10mm 16 : 15mm 21 : 20mm 31 : 30mm 36 : 35mm			Hose/Tube size (in mm) BN11, 16, 21 / CN16, 21 : Ø4 × Ø9, Ø4 × Ø6 BN31 / CN31, 36 : Ø8 × Ø13, Ø9 × Ø12			9 NAE Separate pin material Blank : Titanium HC : HASTELLOY® C276 equivalent (BN11VC-NAE only) S6 : SUS316 (BN11VC-NAE only)							
			6 Air vent Blank : Provided K : Not provided ^{Note} Note: EHN-31/36 (VC/VS)R only										

Model Identification (FC/SH)

EHN			-	BN	11	FC	2	R
1				2	3	4	5	6
1 Pump series EHN Series				3 Effective diaphragm diameter 11 : 10mm 21 : 20mm 31 : 30mm 36 : 35mm			5 Connection size FC 2 : Ø4 × Ø6 6 : Ø10 × Ø12 SH 9 : Rc 1/4	
2 Drive unit (Average power consumption) BN : 20W CN : 24W				4 Wet end materials FC SH			6 Controller R : Standard type YN : Advanced type	

Pump Specifications

(VC/VS/PC/PS/PP)

Model		EHN-BN11	EHN-BN16	EHN-BN21	EHN-BN31	EHN-CN16	EHN-CN21	EHN-CN31	EHN-CN36
Max. discharge capacity	mL/min	38	65	100	230	80	130	270	450
	mL/shot	0.05 - 0.11	0.09 - 0.18	0.14 - 0.28	0.32 - 0.64	0.09 - 0.22	0.14 - 0.36	0.30 - 0.75	0.50 - 1.25
Max. discharge pressure	MPa	1.0	0.70	0.40	0.20	1.0	0.70	0.35	0.20
Stroke rate	spm	1 - 360							
Stroke length		50 - 100% (0.5 - 1.0mm)				40 - 100% (0.5 - 1.25mm)			
Connection (Hose/Tube dia.)	mm	Ø4×Ø9, Ø4×Ø6			Ø8×Ø13, Ø9×Ø12	Ø4×Ø9, Ø4×Ø6		Ø8×Ø13, Ø9×Ø12	
Power voltage		100 - 240VAC 50/60Hz single phase							
Air vent valve		Provided			Provided/Not Provided	Provided		Provided/Not Provided	
Accessory	Check valve	CAN-1			CAN-2-L	CAN-1		CAN-2-L	
	Braided hose	Ø4×Ø9 or Ø8×Ø13, made from PVC / 3m (PP type comes with EVA hose)							

• PP type is available with EHN-BN11/16/31 and CN21/31/36.

• The maximum discharge capacity of each model represents the figure when the pump is pumping clean water at maximum discharge pressure, rated voltage, ambient temperature, and 360 spm with stroke length 100%.

• 0.12MPa or more discharge pressure is needed to prevent over feeding (0.05MPa or more for the EHN-BN31 and CN36).

If the discharge pressure is at or below the required MPa, install a check valve or back pressure valve.

Operating condition: Liquid temperature range is 0 to 60 °C (0 to 40 °C for VC/VS) (on condition that liquid quality is not changed by freezing, viscosity change, or slurry interfusion)

Ambient temperature range is 0 to 40 °C

(FC/SH)

Model		EHN-BN11	EHN-BN21	EHN-CN21	EHN-CN31	EHN-CN36
Max. discharge capacity	mL/min	38	100	130	270	410
	mL/shot	0.05 - 0.11	0.14 - 0.28	0.14 - 0.36	0.30 - 0.75	0.46 - 1.14
Max. discharge pressure	MPa	1.0	0.40	0.70	0.35	0.20
Stroke rate	spm	1 - 360				
Stroke length		50 - 100% (0.5 - 1.0mm)		40 - 100% (0.5 - 1.25mm)		
Connection	(FC) mm	Ø4×Ø6			Ø10×Ø12	
	(SH) inch	Rc 1/4				
Power voltage		100 - 240VAC 50/60Hz single phase				
Air vent valve		SH: Provided, FC: Not Provided				
Accessory		FC: BVC (Back pressure valve), SH: CS-1S (Check valve)				

• The maximum discharge capacity of each model represents the figure when the pump is pumping clean water at maximum discharge pressure, rated voltage, ambient temperature, and 360 spm with stroke length 100%.

Operating condition: Liquid temperature range is 0 to 60 °C (on condition that liquid quality is not changed by freezing, viscosity change, or slurry interfusion).

Controller Specifications

Controller type		EHN-R	EHN-YN
Operation mode		Manual EXT (Pulse multiply or dividing)	Manual EXT (MULT/DIV/ANA)
Control function	Setting	- Manual stroke rate 1 - 360spm - External - Digital input operation - Multiply 1:n n=1 - 999 - Dividing n:1 n=1 - 999	- Manual stroke rate 1 - 360spm - External - Digital input operation - Multiply 1:n n=1 - 999 - Dividing n:1 n=1 - 999 - Analog input - Input single 0 - 20mA: Two points setting - Output - Alarm (When using FCM), synchronous with each shot
	Setting method	3 operating keys	4 operating keys
	Stop	The pump stops while receiving the stop signal (Make off/Make on can be selected by changing controller setting)	
Display		4-digit LCD, Operating condition or set value or so	
Input	Pulse	No voltage contact, Open collector	
	Stop	No voltage contact, Open collector	
	Analog	—	0 - 20mA
	FCM	—	Open collector
Alarm output		—	Dry contact
Sensor Power voltage		—	12VDC at 20mA
Power voltage		100 - 240VAC 50/60Hz single phase	

The Pump Can be Specialized for the Need of a Special Chemical Injection

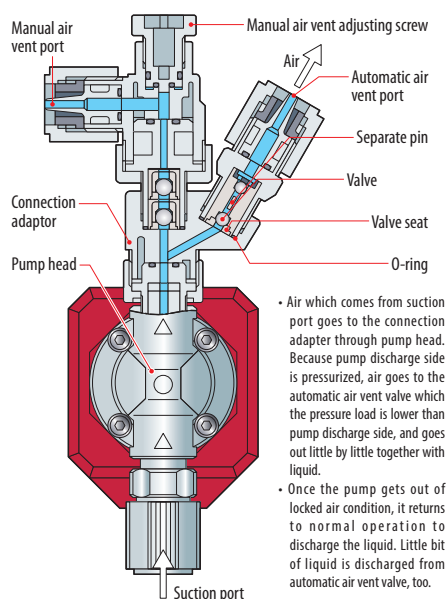
The Optimum for Gaseous Liquid Feeding

Automatic air vent type EHN-NAE

- Gaseous liquid such as sodium hypochlorite can be injected without gas locking.
- This type equips automatic air vent mechanism. An air vent valve built-in pump chamber enables reliable air venting.
- Also equipped manual air vent valve enables easy pressure release in discharge piping.



Principle of Operation



Wet End Materials

Material code	VC	VC-S6	VC-HC	VS
Pump head	PVC			
Connection adaptor	PVC			
Separate pin	Titanium	SUS316	HASTELLOY® C276 equivalent	Titanium
Valve	Zirconia ceramic ^{Note}			SUS316 equivalent
Valve seat	FKM			EPDM
O-ring	FKM			EPDM

Note: Valve for pump head of VC, VC-S6 and VC-HC type is Alumina ceramic.

Specifications

Model	EHN-BN11-NAE	EHN-BN16-NAE	EHN-CN16-NAE	EHN-CN21-NAE
Max. discharge capacity mL/min	30	55	65	110
Discharge capacity per shot mL/shot	0.04 - 0.08	0.08 - 0.15	0.07 - 0.18	0.12 - 0.31
Max. discharge pressure MPa	1.0	0.7	1.0	0.7
Stroke length adjustable range %	50 - 100		40 - 100	
Stroke rate spm	1 - 360			
Connection (Hose/Tube dia.)	Ø4×Ø9, Ø4×Ø6			
Power voltage	100 - 240VAC 50/60Hz single phase			
Accessory	Check valve CAN-1 PVC braided hose 3m			

Operating condition : Liquid temperature 0 - 40°C. Ambient temperature 0 - 40°C
 • Max. discharge capacity represents the figure when pumping clear water at ambient temperature at max. discharge pressure. Pump discharges more liquid than shown above if it runs at lower discharge pressure. If discharge pressure is 0.12MPa or lower, be sure to use check valve to avoid over-feeding.

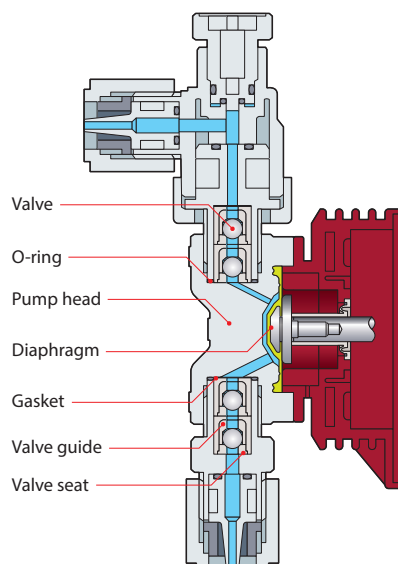
The Optimum for Sodium Hypochlorite Feeding

High compression head type EHN-55

- Increased compression ratio due to minimized dead volume in pump chamber.



Construction



Wet End Materials

Material code	VC
Pump head	PVC
Valve	Alumina ceramic
Valve seat	FKM
Valve guide	PVC
Gasket	PTFE
O-ring	FKM
Diaphragm	PTFE+EPDM (EPDM of diaphragm is not wet end.)

Specifications

Model	EHN-BN11VC-55	EHN-BN16VC-55	EHN-BN21VC-55
Max. discharge capacity mL/min	38	65	100
Discharge capacity per shot mL/shot	0.05 - 0.11	0.09 - 0.18	0.14 - 0.28
Max. discharge pressure MPa	1.0	0.7	0.4
Stroke length adjustable range %	50 - 100		
Stroke rate spm	1 - 360		
Connection (Hose/Tube dia.)	Ø4×Ø9, Ø4×Ø6		
Power voltage	100 - 240VAC 50/60Hz single phase		
Accessory	Check valve CAN-1, PVC braided hose 3m		

Operating condition : Liquid temperature 0 - 40°C. Ambient temperature 0 - 40°C
 • Max. discharge capacity represents the figure when pumping clear water at ambient temperature at max. discharge pressure. Pump discharges more liquid than shown above if it runs at lower discharge pressure. If discharge pressure is 0.12MPa or lower, be sure to use check valve to avoid over-feeding.

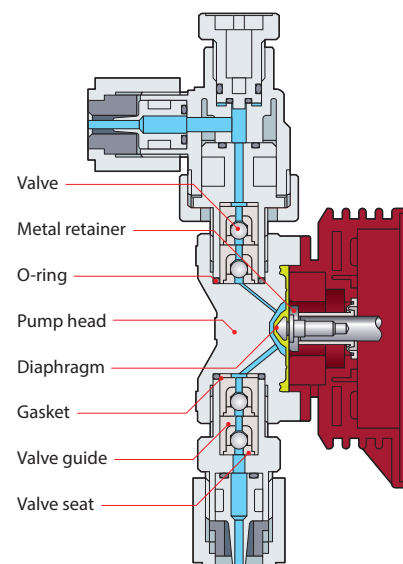
Ideal for Boiler Chemical Injection into Pressurized Pipelines

High pressure type EHN-H

- Max. discharge pressure: 1.5MPa (Max. 360spm)



Construction



Wet End Materials

Material code	PS
Pump head	GFRPP
Valve	SUS316 equivalent
Valve seat	EPDM
Valve guide	GFRPP
Gasket	PTFE
O-ring	EPDM
Diaphragm	PTFE+EPDM (EPDM of diaphragm is not wet end.)

Specifications

Model	EHN-BN11PS-H	EHN-CN16PS-H
Max. discharge capacity mL/min	30	60
Discharge capacity per shot mL/shot	0.04 - 0.08	0.07 - 0.17
Max. discharge pressure MPa	1.5	
Stroke length adjustable range %	50 - 100	40 - 100
Stroke rate spm	1 - 360	
Connection (Hose/Tube dia.)	Outlet/Airvent: Ø4×Ø9, Inlet: Ø4×Ø6	
Power voltage	100 - 240VAC 50/60Hz single phase	
Accessory	Check valve CS-1E-2, Nylon tube 3m	

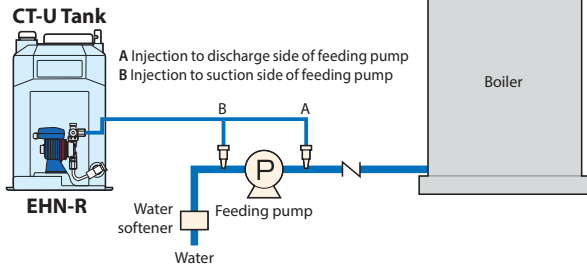
Operating condition : Liquid temperature 0 - 60°C. Ambient temperature 0 - 40°C
 • Max. discharge capacity represents the figure when pumping clear water at ambient temperature at max. discharge pressure. Pump discharges more liquid than shown above if it runs at lower discharge pressure. If discharge pressure is 0.12MPa or lower, be sure to use check valve to avoid over-feeding.

The EHN Series Meets the Needs of Various Chemical Feeding in Water Treatment Fields

Injection of boiler chemical into through flow boiler

EHN-R

Because the pump can inject very small capacity, pure boiler chemical can be injected without diluting.

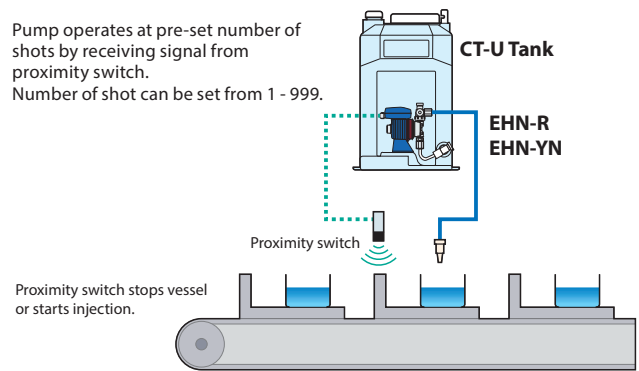


Metering dose

EHN-R

EHN-YN

Pump operates at pre-set number of shots by receiving signal from proximity switch. Number of shot can be set from 1 - 999.

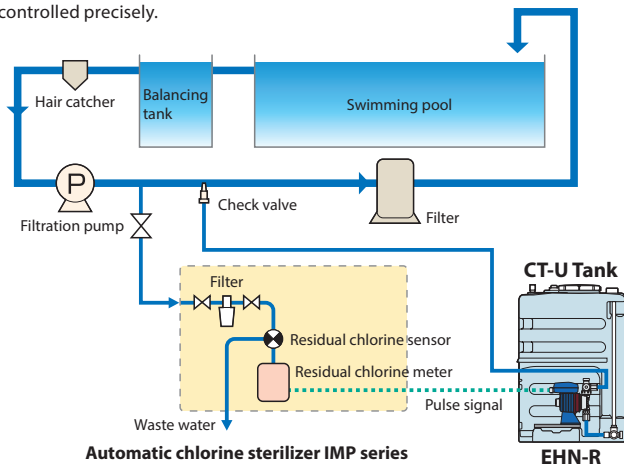


Sterilizing of swimming pool water (Residual chlorine concentration control)

EHN-R

Continuous injection of sodium hypochlorite.

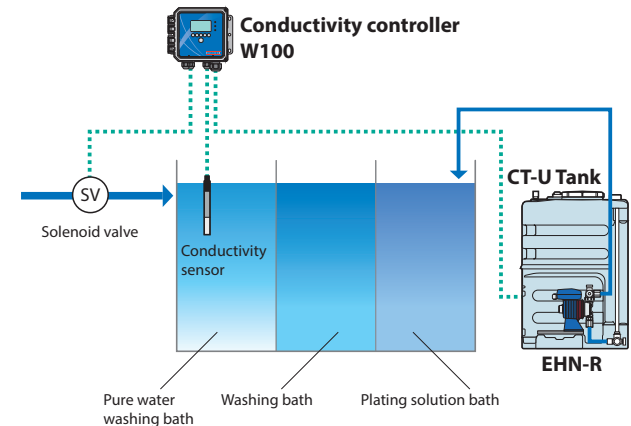
Combined with Chlorine sterilizer, residual chlorine concentration can be controlled precisely.



• Please refer to the single goods catalog of the separate volume for details of the IMP series.

Electroless plating system (Planting solution supply/ Conductivity control of cleaning water)

EHN-R



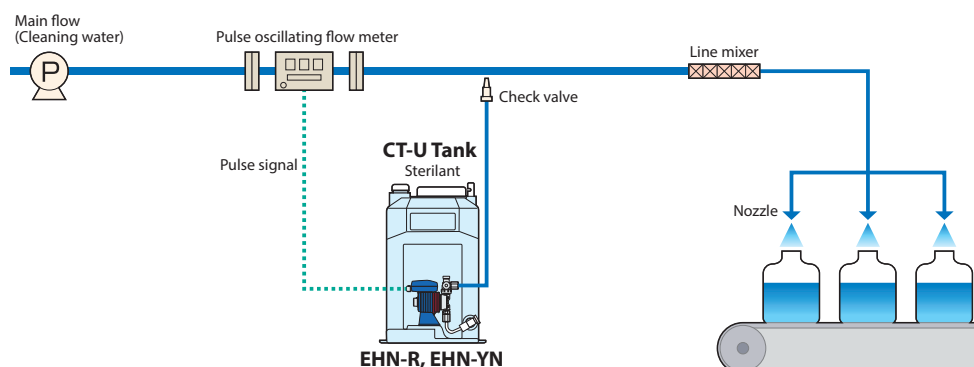
• Please refer to the single goods catalog of the separate volume for details of the TC-300.

Sterilizing of distilled water (Proportional mixing of cleaning water and sterilizing agent)

EHN-R

EHN-YN

Pump injects sterilizing agent in proportion to the flow rate of cleaning water by the signal from pulse oscillating flow meter. Same mixing concentration can be kept regardless of the change of cleaning water flow rate.



Optional Accessories

Check valve

Mount the check valve at the end of discharge hose for the prevention of over feeding, backflow, and siphon action.

Note: CBN type is an option.

CAN type : Standard accessory



CBN type : In-line type check valve.
Install it between hoses.



CS type : Stainless type for high liquid temperature.
General model and boiler model are available.



Model	Connection		Set Press		Material			Applicable pump	Wet end material code		
	IN	OUT	MPa		Body	Spring	O-ring				
CAN-1VC-M	Ø4×Ø9	R3/8, R1/2 Thread	0.17	±0.04	PVC	HASTELLOY® C276 equivalent	FKM	BN11, 16, 21 CN16, 21	VC		
CAN-1VC-3	Ø6×Ø8						EPDM		VS		
CAN-1VC-23	Ø6×Ø12						FKM		VC		
CAN-1VE-M	Ø4×Ø9						EPDM		VS		
CAN-1VE-3	Ø6×Ø8		0.05	+0.04 −0.03			FKM	BN31, CN36	VC		
CAN-1VCL-M	Ø4×Ø9						EPDM		VS		
CAN-1VEL-M	Ø4×Ø6						FKM		VC		
CAN-2VCL-M	Ø8×Ø13						EPDM		VS		
CAN-2VEL-M	Ø9×Ø12		0.17	±0.04			FKM	CN31	VC		
CAN-2VC-M	Ø9×Ø12						EPDM		VS		
CAN-2VE-M	Ø8×Ø13	0.05		+0.04 −0.03			FKM	BN31, CN36	PC, PP		
CAN-1V-M	Ø4×Ø9		EPDM				PS				
CAN-1E-M	Ø4×Ø6		FKM				PC, PP				
CAN-2VL-M	Ø8×Ø13		EPDM				PS				
CAN-2EL-M	Ø9×Ø12	0.17	±0.04			FKM	CN31	PC, PP			
CAN-2V-M	Ø9×Ø12					EPDM		PS			
CAN-2E-M	Ø8×Ø13	0.34	±0.04			FKM	BN11, 16, 21 CN16, 21	VC			
CAN-1VCH-M	Ø4×Ø9					EPDM		VS			
CAN-1VCH-23	Ø6×Ø12					FKM		PC, PP			
CAN-1VEH-M	Ø4×Ø9					EPDM		PS			
CAN-1VH-M	Ø4×Ø6	GFRPP CFRPP				FKM		PC, PP			
CAN-1EH-M	Ø4×Ø6					EPDM		PS			
CBN-1VC-M	Ø4×Ø9					PVC		HASTELLOY® C276 equivalent	FKM	BN11, 16, 21 CN16, 21	VC
CBN-1VC-3	Ø6×Ø8								EPDM		VS
CBN-1VC-23	Ø6×Ø12	FKM	VC								
CBN-1VC-24	Ø5×Ø8	EPDM	VS								
CBN-1VE-M	Ø4×Ø9	0.05	+0.04 −0.03				FKM		BN31, CN36	VC	
CBN-1VE-3	Ø6×Ø8						EPDM			VS	
CBN-2VCL-M	Ø8×Ø13						FKM			VC	
CBN-2VEL-M	Ø9×Ø12						EPDM			VS	
CBN-2VC-M	Ø9×Ø12	0.17	±0.04				FKM		CN31	VC	
CBN-2VE-M	Ø9×Ø12						EPDM			VS	
CBN-1V-M	Ø4×Ø9	0.17	+0.05 −0.04			FKM	BN11, 16, 21 CN16, 21	PC, PP			
CBN-1V-3	Ø6×Ø8					EPDM		PS			
CBN-1E-M	Ø4×Ø9					FKM		BN31, CN36	VC		
CBN-1E-3	Ø6×Ø8					EPDM			VS		
CBN-2VL-M	Ø8×Ø13	0.05	+0.04 −0.03			FKM	BN31, CN36	VC			
CBN-2EL-M	Ø9×Ø12					EPDM		VS			
CBN-2V-M	Ø9×Ø12					FKM		VC			
CBN-2E-M	Ø9×Ø12					EPDM		VS			
CBN-1VCH-M	Ø4×Ø9	0.34	±0.04			FKM	BN11, 16, 21 CN16, 21	VC			
CBN-1VCH-3	Ø6×Ø8					EPDM		VS			
CBN-1VCH-23	Ø6×Ø12					FKM		BN11, 16, 21 CN16, 21	PC, PP		
CBN-1VCH-24	Ø5×Ø8					EPDM			PS		
CBN-1VEH-M	Ø4×Ø9		0.05	+0.05 −0.04			FKM	BN31, CN36	VC		
CBN-1VEH-3	Ø6×Ø8						EPDM		VS		
CBN-1VEH-23	Ø6×Ø12						FKM		BN11, 16, 21 CN16, 21	PC, PP	
CBN-1VEH-24	Ø5×Ø8						EPDM			PS	
CCA-1FC-4×6	Ø4×Ø9 Hose		R3/8, R1/2 Thread	0.04 or more		PVDF	HASTELLOY® C276 equivalent	FKM	BN11, 16, 21 CN16, 21	FC	
CS-1S	R1/4 Thread		R1/4 Thread	0.2	±0.03	SUS316		—	BN11, 16, 21 CN16, 21	SH	
CS-1SL	R1/4 Thread	R1/4 Thread	0.05	±0.03	SUS316	—		CN36			
CS-1E	Ø4×Ø6	Ø4×Ø6	0.12	±0.04	SUS304			EPDM	BN11, 16, 21 CN16, 21	VS/PS	
CS-1E-2	Ø4×Ø6	Ø4×Ø6						EPDM	BN11, 16, 21 CN16, 21	VS/PS	

Back pressure valve with check valve

The back pressure valve enhances the dosing accuracy and prevents backflow. Set pressure is adjustable.



Model	Connection		Set Press		Material			Applicable pump	Wet end material code
	IN	OUT	MPa		Body	Valve	O-ring		
BVC-1TV-4H	Ø4×Ø6 Hose	R3/8, R1/2 Thread	0.2	±0.02	PVDF	FKM	— ^{Note}	BN11, 21 CN21	FC
BVC-1TV-10H	Ø10×Ø12 Hose		0.1	±0.02					
BVC-1TV-10H	Ø10×Ø12 Hose		0.2	±0.02					
BVC-1PVL-4H	Ø4×Ø9 Hose	R3/8, R1/2 Thread	0.2	±0.02	PVC	FKM	FKM	BN11, 16, 21 CN16, 21	VC
BVC-1PEL-4H	Ø4×Ø9 Hose					EPDM	EPDM	BN11, 16, 21 CN16, 21	VS
BVC-1PVL-8H(8×13)	Ø8×Ø13 Hose					FKM	FKM	BN11, 16, 21 CN16, 21	VC
BVC-1PEL-8H(8×13)	Ø8×Ø13 Hose					EPDM	EPDM	BN11, 16, 21 CN16, 21	VS

Note: Gasket made of PTFE.

Dampner

Mount the accumulator on discharge side hose to reduce vibration comes from pulsation.



Model	Connection Hose	Capacity	Material			Allowable liquid/ dampner pressure	Use
			Body	Vladar	O-ring		
AQ-10TV	Ø4×Ø9	164mL	PVDF	FKM	FKM	0.05 - 0.5 MPa	Acid
AQ-10TE	Ø4×Ø6			EPDM	EPDM		Alkaline
AQ-10TV-4	Ø8×Ø13			FKM	FKM		Acid
AQ-10TE-4				EPDM	EPDM		Alkaline

• A "charging kit" is required to fill with gas.

Flow checker

Monitors the suction-line flow and sends a signal to the pump at each shot. Its mounting position is beneath the pump inlet, so can detect a system upset under any piping or operating condition.



Model	FCM-VC-MS	FCM-VH-MS
Power voltage	5-24VDC	
Output ^{Note1}	NPN open collector	
Max. power consumption (Load capacity)	8mA (15mA)	
Connection (Hose)	Ø4×Ø9, Ø4×Ø6	
Materials	Wet ends	PVC
	O-ring	FKM EPDM
Applicable pumps	EHN-BN11, 16, 21, / CN16, 21	
Wet end material code	VC	VS

- Min. discharge pressure: 0.2 MPa (Max. pressure varies with pump spec.)
- Min. discharge capacity: 0.1 mL/shot (Max. capacity varies with pump spec.)
- Run the pump with 100% stroke length when the FCM is installed.
- Ambient temp: 0 - 40°C Relative humidity: 35 - 85%RH Liquid temp: 0 - 40°C Max viscosity: 20mPa-s or below

Note1: Loosen the hex socket head screw(M3) and adjust the adjusting screw (remove it as necessary) when the pulse output is unstable.

Note2: Install a check valve to observe the minimum discharge pressure of 0.2MPa.

Flow counter/Controller

The pressure sensor detects pulsation to monitor the flow. Air lock and hose disconnection are also can be detected.



Flow counter

Model	Material			Applicable controller	Applicable pump	Wet end material code
	Sensor	Body	Rubber			
FCP-1VC	Alumina ceramic	PVC	FKM	S3D2-CK	BN11, 16, 21 CN16, 21	VC
FCP-1VE			EPDM			VS
FCP-1PC		GFRPP	FKM			PC
FCP-1PE			EPDM			PS

• Pulse output range: 0.3 - 1.0 MPa

Controller

Model	Material				Applicable pump	Note
	Power voltage	Setting method	Output	Warnig time		
S3D2-CK	100 - 240VAC	DIN Rail	Relay output (1c)	0.1 - 1/1 - 10s	BN11, 16, 21 CN16, 21	Omron product

Degassing joint

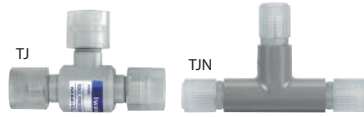
Mount at the pump inlet in order to prevent gas lock by degassing the gas bubbles generated in the suction line. (e.g. sodium hypochlorite application)



Model	Connection		Material		Applicable pump
	Joint inlet	Gas vent	Body	O-ring	
DG-VC	Ø4×Ø6	Ø8×Ø13	PVC	FKM	BN11, 16, 21 CN16, 21
DG-VH	Ø4×Ø9	Ø9×Ø12		EPDM	

T-joint

Used to branch off hose piping.



Model	Connection		Material Body	Applicable pump	Wet end material code
	Hose				
TJ-4H	Ø4×Ø9		PVC	BN11, 16, 21 / CN16, 21	VC, VS
TJ-8H	Ø8×Ø13			BN31 / CN31, 36	
TJN ^{Note}	Ø4×Ø6, Ø4×Ø9, Ø5×Ø8, Ø6×Ø8, Ø6×Ø11, Ø6×Ø12, Ø8×Ø13, Ø9×Ø12, Ø10×Ø12, Ø14×Ø3/8, Ø3/8×Ø1/2			BN11, 16, 21 / CN16, 21 BN31 / CN31, 36	

Note: The hose/tube connection set is not included and it has to be provided separately. Please select 3 sets of the required size from the table above.

Hose flange

The hose flange is the adapter for connecting hose to flange. Hose flange with the check valve is also available.



Model	Connection		Body	Material		Applicable pump	Wet end material code
	Hose	Flange		O-ring	Check valve model		
15FCAN-1VC-M	Ø4×Ø9	JIS10K 15AFF	PVC	FKM	CAN-1VC	BN11, 16, 21	VC
15FCAN-1VE-M	Ø4×Ø6			EPDM	CAN-1VE	CN16, 21	VS
15FCAN-2VC-M	Ø8×Ø13			FKM	CAN-2VC	CN31	VC
15FCAN-2VE-M	Ø9×Ø12			EPDM	CAN-2VE		VS
15FVN×MS	Ø4×Ø9			FKM	—	BN11, 16, 21	VC
15FEN×MS	Ø4×Ø6			EPDM		CN16, 21	VS
15FVN×ML	Ø8×Ø13			FKM		BN31	VC
15FEN×ML	Ø9×Ø12			EPDM		CN31, 36	VS
20FCAN-1VC-M	Ø4×Ø9	JIS10K 20AFF	PVC	FKM	CAN-1VC	BN11, 16, 21	VC
20FCAN-1VE-M	Ø4×Ø6			EPDM	CAN-1VE	CN16, 21	VS
20FCAN-2VC-M	Ø8×Ø13			FKM	CAN-2VC	CN31	VC
20FCAN-2VE-M	Ø9×Ø12			EPDM	CAN-2VE		VS
20FVN×MS	Ø4×Ø9			FKM	—	BN11, 16, 21	VC
20FEN×MS	Ø4×Ø6			EPDM		CN16, 21	VS
20FVN×ML	Ø8×Ø13			FKM		BN31	VC
20FEN×ML	Ø9×Ø12			EPDM		CN31, 36	VS
25FVN×MS	Ø4×Ø9	JIS10K 25AFF		FKM	—	BN11, 16, 21	VC
25FEN×MS	Ø4×Ø6			EPDM	CN16, 21	VS	
25FVN×ML	Ø8×Ø13			FKM	—	BN31	VC
25FEN×ML	Ø9×Ø12			EPDM	CN31, 36	VS	

Union connector

Use the union connector to a connection between different bore hoses.



Model	Connection		Material		Applicable pump	Wet end material code
	IN	OUT	Body	O-ring		
HJVN-1/2	Ø4×Ø9	Ø4×Ø6	PVC	FKM	BN11, 16, 21 / CN16, 21	VC
HJVN-1/18		Ø6×Ø11				
HJVN-2/3	Ø4×Ø6	Ø6×Ø8			BN31 / CN16, 21	VS
HJVN-4/5	Ø8×Ø13	Ø9×Ø12				
HJEN-1/2	Ø4×Ø9	Ø4×Ø6		EPDM	BN11, 16, 21 / CN16, 21	VC
HJEN-1/18		Ø6×Ø11				
HJEN-2/3	Ø4×Ø6	Ø6×Ø8			BN31 / CN16, 21	VS
HJEN-4/5	Ø8×Ø13	Ø9×Ø12				

* Same bore hoses are available as option.

EHN pump base

This special pump base is used to elevate the pump when it is difficult to connect the suction side piping.

Model	Material	Application	Height	Note
EHN-B-M	PVC	For replacing an existing pipe	12mm	EHN-BN type only
	SUS304		70mm	
EHN-C-M	PVC		12mm	EHN-CN type only
	SUS304	For installing a new pipe	70mm	
EHN-B/C-M	PVC		12mm	EHN-BN/CN type shared
	SUS304		70mm	



Multifunction valve

The multifunction valve functions as a back pressure valve, air vent valve, and relieve valve. The set pressure of the back pressure and relief valve is fixed.



Model	Connection Hose	Applicable pump	Set pressure		Material		
			Back pressure	Relief pressure	Body	Diaphragm	O-ring
MFV-HTC	Ø4×Ø6, Ø6×Ø8, Ø6×Ø12, Ø5×Ø8	BN11, 16 / CN16, 21	0.25 MPa	1.25 MPa	PVDF	PTFE+EPDM	FEPM
MFV-MTC	BN21: Ø4×Ø6, Ø6×Ø8, Ø6×Ø12, Ø5×Ø8 CN31: Ø9×Ø12, Ø10×Ø12	BN21, CN31		0.55 MPa			
MFV-LTC	Ø9×Ø12, Ø10×Ø12	BN31, CN36		—			

Hose coupler

The Hose coupler offers a secure connection between hose and pipe.



Thread connection

Model	Connection		Material		Applicable pump	Wet end material code
	Hose	Thread	Body	O-ring		
V4VN-3/8-M	Ø4×Ø9 Ø4×Ø6	R3/8	PVC	FKM	BN11, 16, 21 CN16, 21	VC
V4EN-3/8-M		R1/2		EPDM		VS
V4VN-1/2-M				FKM		VC
V4EN-1/2-M				EPDM		VS
V8VN-3/8-M	Ø8×Ø13 Ø9×Ø12	R3/8	PVC	FKM	BN31 CN31, 36	VC
V8EN-3/8-M		R1/2		EPDM		VS
V8VN-1/2-M				FKM		VC
V8EN-1/2-M				EPDM		VS

VP plumbing connection

Model	Connection		Material		Applicable pump	Wet end material code
	Hose	VP plumbing	Body	O-ring		
V4VN-13-M	Ø4×Ø9 Ø4×Ø6	VP13	PVC	FKM	BN11, 16, 21 CN16, 21	VC
V4EN-13-M				EPDM		VS
V4VN-16-M		VP16		FKM		VC
V4EN-16-M				EPDM		VS
V4VN-20-M		VP20		FKM		VC
V4EN-20-M				EPDM		VS
V8VN-13-M	Ø8×Ø13 Ø9×Ø12	VP13	PVC	FKM	BN31 CN31, 36	VC
V8EN-13-M				EPDM		VS
V8VN-16-M		VP16		FKM		VC
V8EN-16-M				EPDM		VS
V8VN-20-M		VP20		FKM		VC
V8EN-20-M				EPDM		VS

Foot valve with strainer

Mount the foot valve at the end of suction hose. The foot valve with a strainer and a ceramic weight ball prevents backflow and foreign matter interfusion. Inlet bore can be selected according to hose bore.



Model	Connection Hose	Material				Applicable pump	Wet end material code
		Strainer	Body	O-ring	Valve ball		
FSCN-1	Ø4×Ø9	PE	PVC	FKM	Alumina ceramic	BN11, 16, 21 CN16, 21 BN31 CN31, 36	VC
FSCN-2	Ø4×Ø6						
FSCN-3	Ø6×Ø8						
FSCN-4	Ø8×Ø13						
FSCN-5	Ø9×Ø12						

* Mesh size is 150 mesh.

Strainer with foot valve

Mount the strainer at the end of suction hose. The strainer with a foot valve prevents backflow and foreign matter interfusion. Inlet bore can be selected according to hose bore.



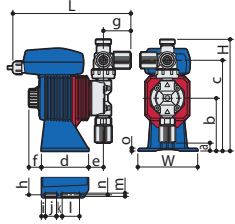
Model	Connection Hose	Material				Applicable pump	Wet end material code
		Strainer	Body	O-ring	Valve ball		
FSVN-1	Ø4×Ø9	Aflon	PVC	FKM	Alumina ceramic	BN11, 16, 21 CN16, 21 BN31 CN31, 36	VC
FSVN-2	Ø4×Ø6						
FSVN-3	Ø6×Ø8						
FSVN-4	Ø8×Ø13						
FSVN-5	Ø9×Ø12						
FSEN-1	Ø4×Ø9			EPDM	HASTELLOY® C276 equivalent	BN11, 16, 21 CN16, 21 BN31 CN31, 36	VS
FSEN-2	Ø4×Ø6						
FSEN-3	Ø6×Ø8						
FSSN-4	Ø8×Ø13						
FSSN-5	Ø9×Ø12						
FSPEN-1	Ø4×Ø9		GFRPP	EPDM	HASTELLOY® C276 equivalent	BN11, 16, 21 CN16, 21 BN31 CN31, 36	PS
FSPEN-2	Ø4×Ø6						
FSPEN-3	Ø6×Ø8						
FSPSN-4	Ø8×Ø13						
FSPSN-5	Ø9×Ø12						
FSPVN-1	Ø4×Ø9	GFRPP	FKM	FKM	Alumina ceramic	BN11, 16, 21 CN16, 21 BN31 CN31, 36	PC
FSPVN-2	Ø4×Ø6						
FSPVN-3	Ø6×Ø8						
FSPVN-4	Ø8×Ø13						
FSPVN-5	Ø9×Ø12						

* Mesh size is 20 mesh.

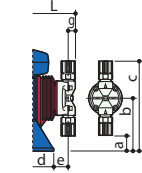
Dimensions in mm

EHN-BN□MR

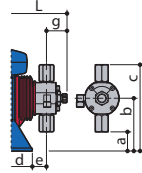
• VC, VS, PC, PS, PP



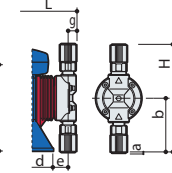
• FC



• SH

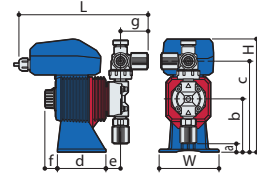


• KR

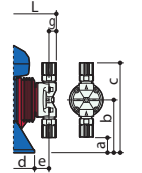


EHN-BN□MYN

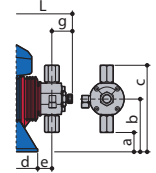
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• FC

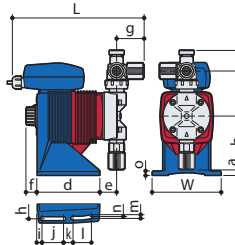


• SH

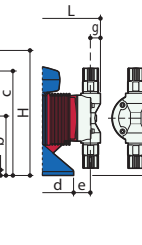


EHN-CN□MR, EHN-CN□KR

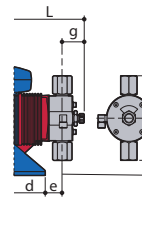
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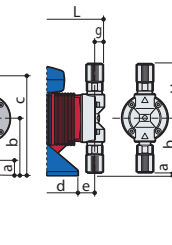
• FC



• SH

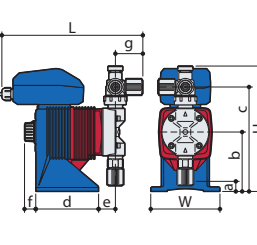


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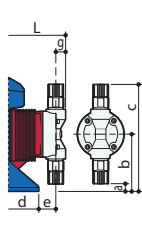


EHN-CN□MYN

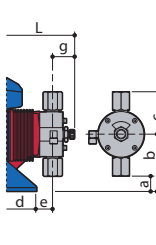
• VC, VS, PC, PS, PP



• FC



• SH



EHN-R (VC, VS, PC, PS, PP)

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)	h	i	j	k	l	m	n	o
EHN-BN11, 16, 21	100	189	202	14	90	154	81.5	25	21	47	88	7	16	10	32	6.2	-	5
EHN-BN31		201	204	-		166		27										
EHN-CN16, 21	116	199	220	25 ^{Note1}	100	164	105	27	18	47	100	8	37	15	30	7	95	8
EHN-CN31, 36		211 ^{Note2}	222	9 ^{Note3}		176 ^{Note4}		29										

Note1: PC type is 24mm. Note2: EHN-CN36 (PC type) is 210mm. Note3: EHN-CN36 (PC type) is 10mm. Note4: EHN-CN36 (PC type) is 175mm.

EHN-KR (VC, VS)

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)	h	i	j	k	l	m	n	o
EHN-BN31	100	181	173	1	90	-	81.5	27	21	16	88	7	16	10	32	6.2	-	5
EHN-CN31	116	191	192	9	100		105	29	18		100	8	37	15	30	7	95	8
EHN-CN36			191															

EHN-R (PP)

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)	h	i	j	k	l	m	n	o
EHN-BN11, 16	100	190	202	14	90	155	81.5	25	21	47	88	7	16	10	32	6.2	-	5
EHN-BN31		202	203	2		167		27										
EHN-CN21	116	200	220	24	100	165	105	27	18	47	100	8	37	15	30	7	95	8
EHN-CN31		212	222	8		177		29										
EHN-CN36		211	222	9		176		29										

EHN-R

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)
EHN-BN11, 21	100	174	167	27	90	153	81.5	25	21	12
EHN-CN21	116	189	185.5	37	100	163		27	18	12
EHN-CN31			191.5	18.5		181.5		29		
EHN-CN36			191					28.5		

EHN-R (SH)

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)
EHN-BN11, 21	100	174	188	34	90	146	81.5	24	21	34
EHN-CN21	116	189	209	34	100	156	105	26	18	36.5
EHN-CN31			208.5	31		166		28		34.5
EHN-CN36						169				34

EHN-YN (VC, VS, PC, PS, PP)

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)
EHN-BN11, 16, 21	100	191	218	14	90	154	81.5	25	21	47
EHN-BN31		201	220	1		166		27		
EHN-CN16, 21	116	199	220	25 ^{Note1}	100	164	105	27	18	47
EHN-CN31, 36		211 ^{Note2}	223 ^{Note3}	9 ^{Note4}		176 ^{Note5}		29		

Note1: PC type is 24mm. Note2: EHN-CN36 (PC type) is 210mm. Note3: EHN-CN36 is 238mm.

Note4: EHN-CN36 (PC type) is 10mm. Note5: EHN-CN36 (PC type) is 175mm.

EHN-YN (FC)

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)
EHN-BN11, 21	100	191	183.5	27	90	153	81.5	25	21	12
EHN-CN21	116	206.5	202	37	100	163	105	27	18	12
EHN-CN31			208	18.5		181.5		29		28.5
EHN-CN36			207.5							

EHN-YN (SH)

Model	W	(H)	(L)	(a)	b	(c)	d	(e)	(f)	(g)
EHN-BN11, 21	100	191	204.5	34	90	146	81.5	24	21	34
EHN-CN21	116	206.5	225.5	44	100	156	105	26	18	36.5
EHN-CN31			225	34		166		28		
EHN-CN36			225	31		169		28		

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Caution for safety use:
Before use of pump, read instruction manual carefully to use the product correctly. Actual pumps may differ from the photos. Specifications and dimensions are subject to change without prior notice. For further details please contact us.

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