IWAKI

Electromagnetic Metering Pumps

EWN-R

Multi Voltage,
High-Speed Operation,
Multifunctional Controllter

The Heart of Industry

Multi voltage, High-speed operation, Multifunctional controller
The high-end electromagnetic metering pump

PVC type GFRPP type PVDF type SUS type

The EWN-R is the diaphragm type electromagnetic metering pump with a built-in multifunctional digital controller.
Our technology makes the high-speed operation of 360spm available.
The built-in controller that handles both digital and analogue signals controls operation in various ways.
PVC, GFRPP, PVDF or SUS316 pump head is selectable.
Also, special pump types for particular purposes are lined up.
The user-friendly EWN-R will meet a wide variety of demands for chemical feeding.

High resolution

The stroke rate can be set with 1pm increments in between 1 and 360spm. The stroke length adjustment further assists fine adjustment that the stroke rate adjustment cannot reach. Contentious precise chemical feeding is now available.

Multi voltage

The use of the multi voltage circuit design allows the pump to work anywhere in the world.

A wide variation

In addition to the standard type of PVC, GFRPP, PVDF or SUS316 pump head, B- or C-type drive unit and each diaphragm size, the high compression type for gaseous liquid transfer (sodium hypochlorite, etc), the high pressure type for power injection (boiler compounds, etc) and the high viscosity type for viscous liquid transfer (polymer liquid. etc) are available.

Built-in controller

The EWN-R has the mode of 1:1 operation, multiplier/divider programming control (digital signal) and proportional control (analogue signal) and can dedicate itself to a particular purpose by selecting a suitable mode. Also, the flow rate indication can be converted from spm to L/H or GPH.

Pump body

The use of the integrated controller reduces a sealing area, so that the water-/dust-proof design of IP65 is attained. Also, a plastic cover protects the control panel under an adverse environment.

Air vent valve

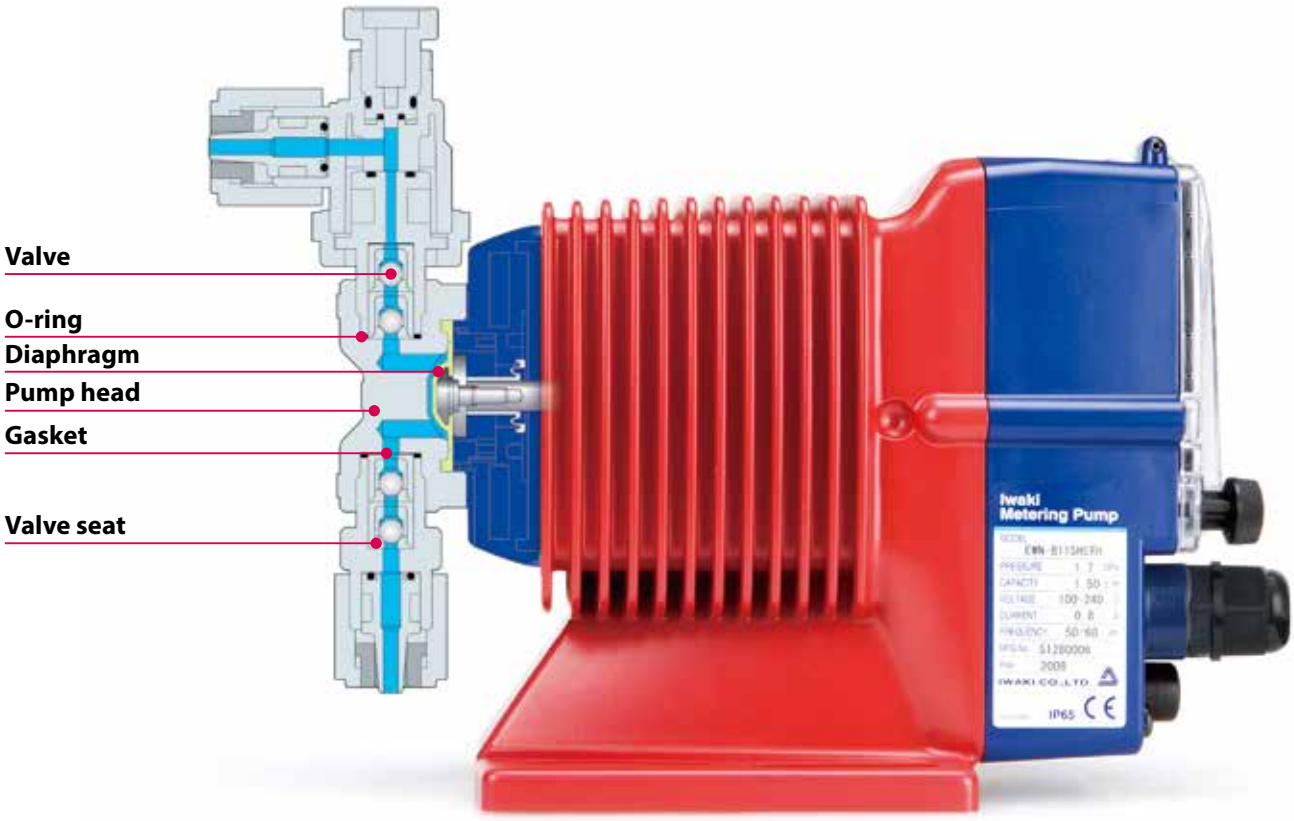
Rotating a standard air vent valve, the remained gas can be easily expelled from the pump head.

Multi hose connection

The use of a new hose stopper eliminates a twist in tube connection.

Technical data

Construction



Wet end Materials

	Pump head	Valve	Valve seat	O-ring	Diaphragm	Gasket	Applicable pump
VC	PVC	Alumina ceramic	FKM	FKM	PTFE+EPDM	PTFE	B11, 16, 21, 31, C16, 21, 31, 36
VH		HASTELLOY® C276 equivalent	EPDM	EPDM			B11, 16, 21 C16, 21
VS		SUS316 equivalent					B31, C31, C36
PC	GFRPP	Alumina ceramic	FKM	FKM			B11, 16, 21, 31, C16, 21, 31, 36
PH		HASTELLOY® C276 equivalent	EPDM	EPDM			B11, 16, 21 C16, 21
PS		SUS316 equivalent					B31, C31, C36
FC	PVDF	Alumina ceramic	PCTFE	-			B11, 16, 21, 31, C16, 21, 31, 36
TC			FKM	FKM			
SH	SUS316	HASTELLOY® C276 equivalent	SUS316	-			

Pump identification

EWN - B 11 VC □ E R □ - □

- **Series symbol**
  EWN-R series
- **Drive unit symbol**
  Average power consumption
  B: 20W **C**: 24W
- **Diaphragm diameter**
  Effective diaphragm dia.
  09: 8mm **11**: 10mm **16**: 15mm
  21: 20mm **31**: 30mm **36**: 35mm
- **Wet-end material symbol**
  For details, see the table of materials.
- **Connection**
  Blank: Ø4 x Ø6 (B09,B11,B16,B21,C16,C21)
  Ø9 x Ø12 (B31,C31,C36)
  For other option, please contact us.
- **Power code**
  E: With European cord
  A: With Australian cord
- **Controller function code**
  R: Standard type
- **Special version code**
  C: High compression type
  H: High pressure type
  V: Viscosity type
- **Special configuration code**
  H2: High pressure type (2MPa)

Specifications of pump

Model		B11	B16	B21	B31	C16	C21	C31	C36	
									VC/VS/PC/PS	FC/TC/SH
Capacity	L/hr	2.3	3.9	6.0	12.0	4.8	7.8	16.2	25.2	24.6
	mL/min	38	65	100	200	80	130	270	420	410
	mL/shot	0.05 to 0.1	0.09 to 0.18	0.14 to 0.28	0.28 to 0.56	0.09 to 0.22	0.14 to 0.36	0.3 to 0.75	0.47 to 1.17	0.46 to 1.14
Rated discharge pressure	MPa	1.0	0.7	0.4	0.2	1.0	0.7	0.35	0.2	0.2
Max. pressure	MPa	(1.4)	(0.8)	(0.5)	-	(1.2)	(0.8)	-	-	-
Stroke rate	% (spm)	0.1 to 100 (1 to 360)								
Stroke length range	% (mm)	50 to 100 (0.5 to 1.0)				40 to 100 (0.5 to 1.25)				
Current	A	0.8				1.2				
Average power consumption	W	20				24				

Note 1: Each discharge capacity shown above is at discharge pressure (stroke length 100%, stroke rate 100%) and increases as a discharge pressure reduces.
Note 2: The performance is based on pumping clean water at ambient temperature at rated voltage.
Note 3: Liquid temperature ·VC/VH types: -10 to 40ºC ·PC/PH/FC/SH/TC types: -10 to 60ºC
Note 4: Max pressure is not guaranteed under any discharge condition. Max pressure of PVC type is 1.2MPa. Please contact us for details.

Specifications of controller

Operational mode	MAN			0.1 to 100% stroke rate
	EXT	DIV (Dividing)		/1 to 9999
		MULT (Multiply)		×1 to 9999
		ANA.R (Analog, rigid)		4 to 20, 0 to 20, 20 to 4, 20 to 0 mA
		ANA.V (Analog, variable)		2 points 0.0 to 20.0 mA range 0.0 to 100% stroke rate
Display	LCD	14seg 5digits		%, ml/m, L/H, GPH, STOP, PRIME, AUX etc
	LED	ON	Green	Green lights when power is put and blinks synchronous with stroke.
		STOP	Orange/Red	Orange lights when Pre-STOP is activated, and red when STOP is activated.
Keypad	5 Keys	Start/Stop, ▲ (Up),▼(Down), EXT, DISP		
Control function		STOP/Pre-Stop		Pump keeps running when Pre-STOP is activated. Pump stops when STOP is activated.
		Prime		Pump runs at max. stroke rate while up and down keys are pushed.
		Key lock		Key can be locked and unlocked.
		Calibration		Discharge capacity per shot is calculated automatically by operating and stopping pump at calibration mode to make flow rate indication possible.
		Buffer memory		ON or OFF is selectable. Max. 65535 stroke pulses are put in memory.
Input		Pulse		Non Voltage contact or open collector, Max. 200Hz
		Current		DC0 to 20mA (Input resistance 200Ω)
		Level sensor		No Voltage contact or open collector, 2- steps contact
		AUX		Pump runs at max.stroke rate while AUX signal is input.
Output		Photo-MOS relay AC/DC24V 0.1A		
		STOP, Synchronous with stroke		
		Synchronous with stroke is standard.		
Power Voltage		100 to 240 VAC 50/60Hz (90 to 264 VAC)		

* Note 1: If the max. stroke rate by calculation exceeds 100% stroke rate because of the relation between the setting and input signal when the pump is in EXT operation, the operation is fixed at Maximum stroke rate speed of manual operation.
* Note 2: By changing the setting, the pump can run when the contact signal comes in.
* Note 3: The max. frequency of input pulse is 200 Hz. ON time of input pulse is 10 to 100 mS.
* Note 4: The max. chargeable voltage to a contact is 12V and current is 0.1mA. If a contact such as relay is used, the minimum application load should be 0.1mA or below.

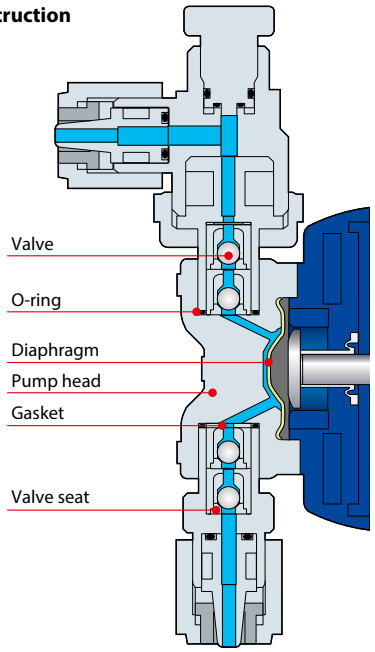
The pump can be specialized for the need of a special chemical transfer.

High compression type

The optimum feeding for gaseous liquids

Increased compression ratio due to minimized dead volume in pump chamber. Suitable for injection of gaseous liquids such as sodium hypochlorite, hydrogen peroxide etc.

Construction



Wet end materials

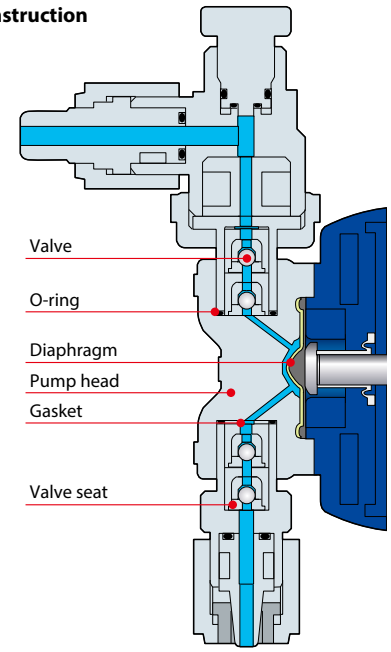
Material code	VC	VH	VS
Pump head	PVC		
Valve	Alumina ceramic	HASTELLOY® C276 equivalent	SUS316 equivalent
Valve seat	FKM	EPDM	
Gasket	PTFE		
O-ring	FKM	EPDM	
Diaphragm	PTFE+EPDM		

High pressure type

Suitable for boiler chemical injection

- The high pressure type can handle the maximum discharge pressure of 1.7MPa.
- The 25 and 40mL/min (max. Discharge pressure) types are available.
- Capable of boiler chemical injection to the discharge line of a water-supply pump as long as the discharge pressure is 1.7MPa or below.

Construction



Wet end materials

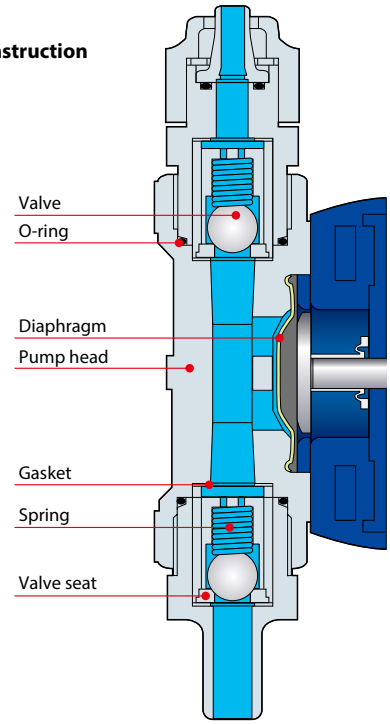
Material code	PC	PH	PS	SH
Pump head	GFRPP			SUS316
Valve	Alumina ceramic	HASTELLOY® C276 equivalent	SUS316 equivalent	HASTELLOY® C276 equivalent
Valve seat	FKM	EPDM		SUS316
Gasket	PTFE			
O-ring	FKM	EPDM		-
Diaphragm	PTFE+EPDM			

Viscosity type

Suitable for high-polymer coagulant injection

- Suitable for polymer flocculants injection in wastewater treatment. Please contact us for details.

Construction



Wet end materials

Material code	PC
Pump head	GFRPP
Valve	Alumina ceramic
Valve seat	FKM
Spring	HASTELLOY® C276 equivalent
Gasket	PTFE
O-ring	FKM
Diaphragm	PTFE+EPDM

Specifications

Model		High compression type					
		B09	B11	B16	B21	C16	C21
Capacity	L/hr	0.7	1.4	2.4	3.8	3.2	4.7
	mL/min	12	23	40	63	54	78
	mL/shot	0.03 to 0.07	0.06 to 0.13	0.11 to 0.22	0.18 to 0.35	0.12 to 0.30	0.17 to 0.43
Discharge pressure	MPa	1.0	1.0	0.7	0.4	1.0	0.7
Stroke rate	% (spm)	0.1 to 100 (1 to 180)					
Stroke length range	% (mm)	50 to 100 (0.625 to 1.25)				40 to 100 (0.6 to 1.50)	
Current	A	0.8				1.2	
Average power consumption	W	20				24	

Model		High pressure type		High pressure type (2MPa)	Viscosity type
		B11	C16	B11	C31
Capacity	L/hr	1.5	2.4	1.0	9.0
	mL/min	25	40	17	150
	mL/shot	0.05 to 0.1	0.07 to 0.17	0.05 to 0.07	0.25 to 0.63
Discharge pressure	MPa	1.7	1.7	2.0	0.5
Stroke rate	% (spm)	0.1 to 100 (1 to 240)		0.1 to 100 (1 to 240)	0.1 to 100 (1 to 240)
Stroke length range	% (mm)	50 to 100 (0.5 to 1.0)	40 to 100 (0.5 to 1.25)	70 to 100 (0.6 to 0.9)	40 to 100 (0.5 to 1.25)
Current	A	0.8	1.2	0.8	1.2
Average power consumption	W	20	24	20	24

Note 1: Each discharge capacity shown above is at discharge pressure (stroke length 100%, stroke rate 100%) and increases as a discharge pressure reduces.
Note 2: The performance is based on pumping clean water at ambient temperature at rated voltage.

Optional accessories

Accessories

Check valve CAN / CBN / CS

This has the function of a non-return valve and prevents siphon and overfeed.

CAN: Available in PVC and GFRPP/CFRPP.

CBN: In-line type to be connected in the middle of a hose; made of PVC.

CS: Made of stainless steel for SH type.

Specifications

Model	Connection		Set pressure MPa	Material			Applicable pump
	Inlet mm	Outlet mm		Body	Spring	O-ring	
CAN-1VC	4x6, 5x8 6x8, 6x12	R3/8 and R1/2	0.17±0.04	PVC (GFRPP/ CFRPP)	HASTELLOY® C276 equivalent	FKM	EWN-B09, 11, 16, 21, C16, 21
(CAN-1V)			0.17 $^{+0.05}_{-0.04}$			FKM	
CAN-1VE (1E)			0.17±0.04			EPDM	
CAN-2VC (2V)	6x12 9x12		0.17±0.04			FKM	EWN-C31
CAN-2VE (2E)						EPDM	
CAN-2VCL (2VL)	6x12 9x12		0.05 $^{+0.04}_{-0.03}$			FKM	EWN-B31, C36
CAN-2VEL (2EL)						EPDM	
CBN-1VC	4x6	4x6	0.17±0.04	PVC	HASTELLOY® C276 equivalent	FKM	EWN-B09, 11, 16, 21, C16, 21
CBN-1VE						EPDM	
CS-1S	Rc1/4	Rc1/4	0.2±0.03	SUS316	HASTELLOY® C276 equivalent	–	EWN-B11, 16, 21, C16, 21, 31
CS-1SL			0.05±0.03				EWN-B31, C36

• There are 1V,1E, 2VC, 2VE, 2V and 2E.

Siphon preventing valve BVC

Made of PVC or GFRPP consisting of non-metalic parts.

Specifications

Model	Connection		Set pressure MPa	Material		Applicable pump
	Inlet mm	Outlet mm		Body	O-ring	
Note **BVC-1□□**	4x6 9x12	R3/8 or R1/2	0.2 or 0.05	PVC	FKM or EPDM	All models

Note: Different models are available. Please contact for particulars.

Multi-function valve MFV

This valve has the multi-function of air vent, pressure release inside pipe, pressure releaf and back pressure valve.

Specifications

Model	Tube connection	Set pressure		Material	Applicable pump
		Back pressure valve	Relief valve		
MFV-HTC-2/3/7/23/24	4x6mm, 5x8mm, 6x8mm, 6x12mm, 9x12mm, 10x12mm, 1/4x3/8mm, 3/8x1/2mm	0.25±0.1 MPa	1.25±0.2 MPa	PVDF / FEPM / PTFE+EPDM* *(Not a wet end)	B11/B16/C16/C21
MFV-MTC-2/3/7/23/24		0.25±0.1 MPa	0.55±0.1 MPa		B21
MFV-MTC-5/6/8		0.25±0.1 MPa	0.55±0.1 MPa		C31
MFV-LTC-5/6/8		0.1±0.05 MPa	—		B31/C36

Foot valve FS / FSP / FSTC

This foot valve with a strainer is made of PVC or GFRPP.

Specifications

Model	Tube connection	Material	Applicable pump
FSVN	4x6mm 5x8mm 6x8mm 6x12mm 9x12mm 10x12mm	PVC / FKM / Alumina ceramic	All models
FSEN		PVC / EPDM / SUS316 equivalent	
FSPVN		GFRPP / FKM / Alumina ceramic	
FSPEN		GFRPP / EPDM / SUS316 equivalent	
FSTCN		PVDF / FKM / Alumina ceramic	

Chemical tank EXDT

This is a polyetylene round tank.

Capacity: 35, 60, 100, 200 or 300L

Priming set PS

Made of PVC furnished with level sensor(s) and foot valve.

Specifications

Model	Level switch	Connection mm	Length mm
PS-1	Single	4x6, 5x8, 6x8, 6x12, 9x12	520, 650, 810, 1000, 1350
PS-2	Double		520, 720, 810, 1000, 1350

Pulse oscillating flow meter

Specifications

Connection	Max. capacity	Range of pulse
3/4"	5m^3/h	1xOutput pulse against 0.25L
		1xOutput pulse against 0.50L
		1xOutput pulse against 1.00L
1"	12m^3/h	1xOutput pulse against 0.25L
		1xOutput pulse against 0.50L
		1xOutput pulse against 1.00L
1 1/2"	20m^3/h	1xOutput pulse against 0.25L
		1xOutput pulse against 0.50L
		1xOutput pulse against 1.00L

Flow checker FCM

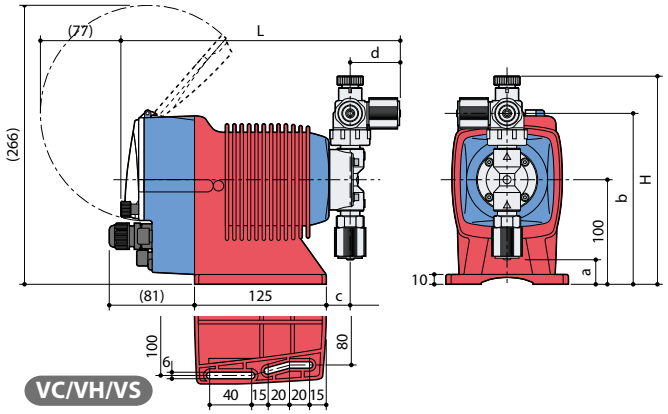
Failed flow detection

Specifications

Model		FCM-VC-2	FCM-VH-2
Power valtage		DC5 to 24V	
Output		NPN open collector	
Max. power consumption (Load capacity)		8mA (15mA)	
Materials	**Wet ends**	PVC	
	O ring	FKM	EPDM
Min. discharge capacity		0.1 ml/shot (Max. capacity varies with pump spec.)	
Min. discharge pressure		0.2 MPa (Max. pressure varies with pump spec.)	
Applicable pumps		EWN-B11/16/21, EWN-C16/21	
Connection		4x6mm	4x6mm

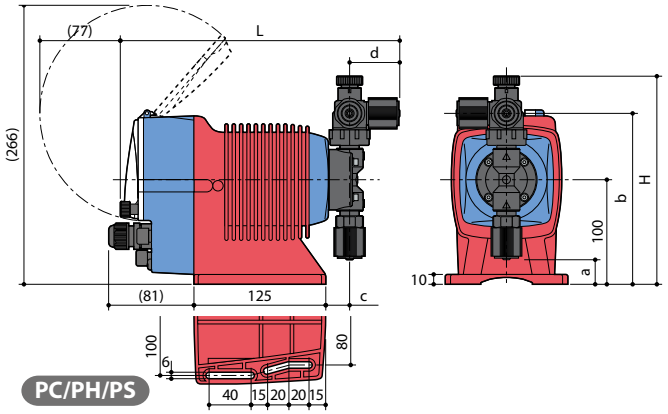
• Run the pump with 100% stroke length when the FCM is installed.
• Install a check valve to observe the minimum discharge pressure of 0.2MPa.
• Loosen the hex socket head screw(M3) and adjust the adjusting screw (remove it as necessary) when the pulse output from the FCM is unstable.

Dimensions in mm



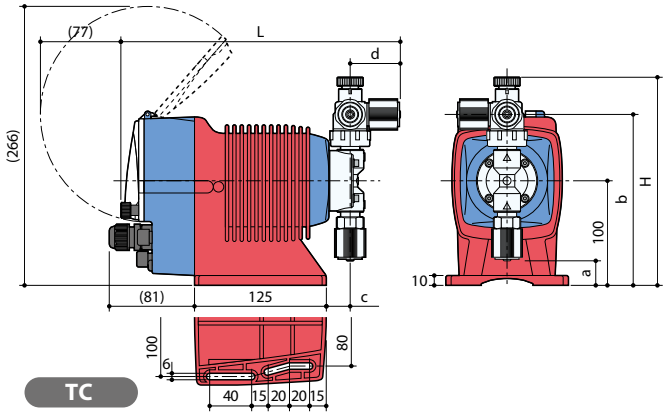
VC/VH/VS

Model	H	L	a	b	c	d
EWN-11, 16, 21	(199)	(265)	(24)	(164)	(23)	(47)
EWN-31	(212)	(267)	(6)	(177)	(25)	(48)
EWN-36	(211)	(267)	(7)	(176)	(24)	(48)



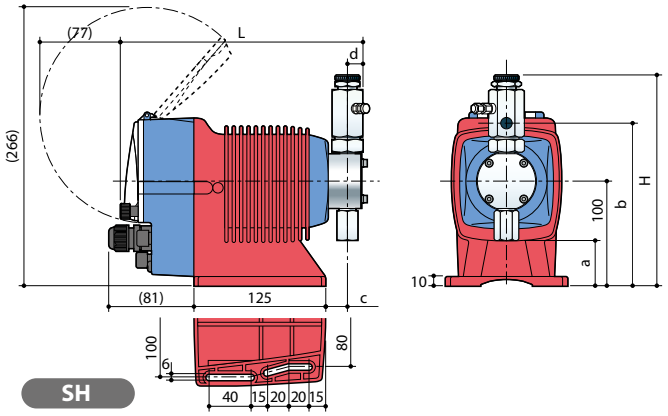
PC/PH/PS

Model	H	L	a	b	c	d
EWN-11, 16, 21	(199)	(265)	(24)	(164)	(23)	(47)
EWN-31	(212)	(267)	(6)	(177)	(25)	(48)
EWN-36	(211)	(267)	(7)	(176)	(24)	(48)



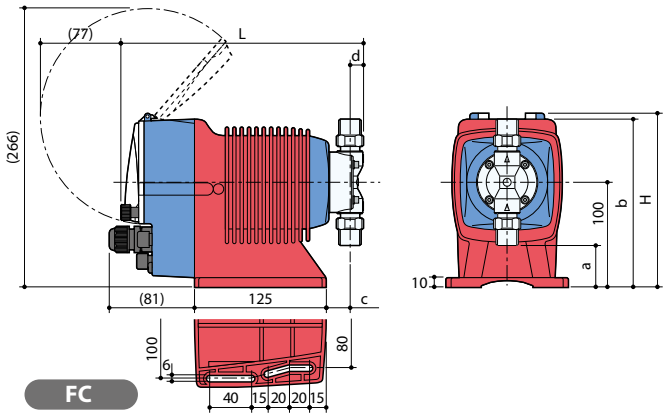
TC

Model	H	L	a	b	c	d
EWN-11, 16, 21	(198)	(265)	(25)	(163)	(23)	(47)
EWN-31	(211)	(267)	(7)	(176)	(25)	(48)
EWN-36	(211)	(268)	(6)	(176)	(24)	(49)



SH

Model	H	L	a	b	c	d
EWN-11, 16, 21	(201)	(232)	(44)	(155)	(22)	(15)
EWN-31	(213)	(233)	(34)	(167)	(23)	(15)
EWN-36	(216)	(233)	(32)	(170)	(23)	(15)



FC

Model	H	L	a	b	c	d
EWN-11, 16, 21	(166)	(231)	(40)	(160)	(23)	(13)
EWN-31	(177)	(236)	(23)	-	(25)	(16)
EWN-36	(177)	(235)	(23)	-	(24)	(16)

• Please contact us for special version.

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( )Country codes

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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