IWAKI

Hi-Techno Pump

IX

A new generation of advanced metering pump technology!

The Heart of Industry

A new generation of advanced metering pump technology!

Hi-Techno Pump IX

Highly precise control offers a solution for every chemical dosing application.
Iwaki's IX Series are digitally controlled direct-drive diaphragm pumps. Years of experience in high-end motor technology result in extremely accurate and energy efficient metering pumps with high resolution. The IX Series meet today's demand for automated chemical delivery in industries from water treatment to chemical process.


High turn down ratio


Viscous liquid transfer


Cavitation prevention


Automatic control

Energy savings and Eco-friendly


Constant injection with low impact


Degassing


Safety design


Precise chemical dosing operation


IP65


Calibration


User friendly design


Efficient pump head design is incorporated with high compression


Compliant to world standards

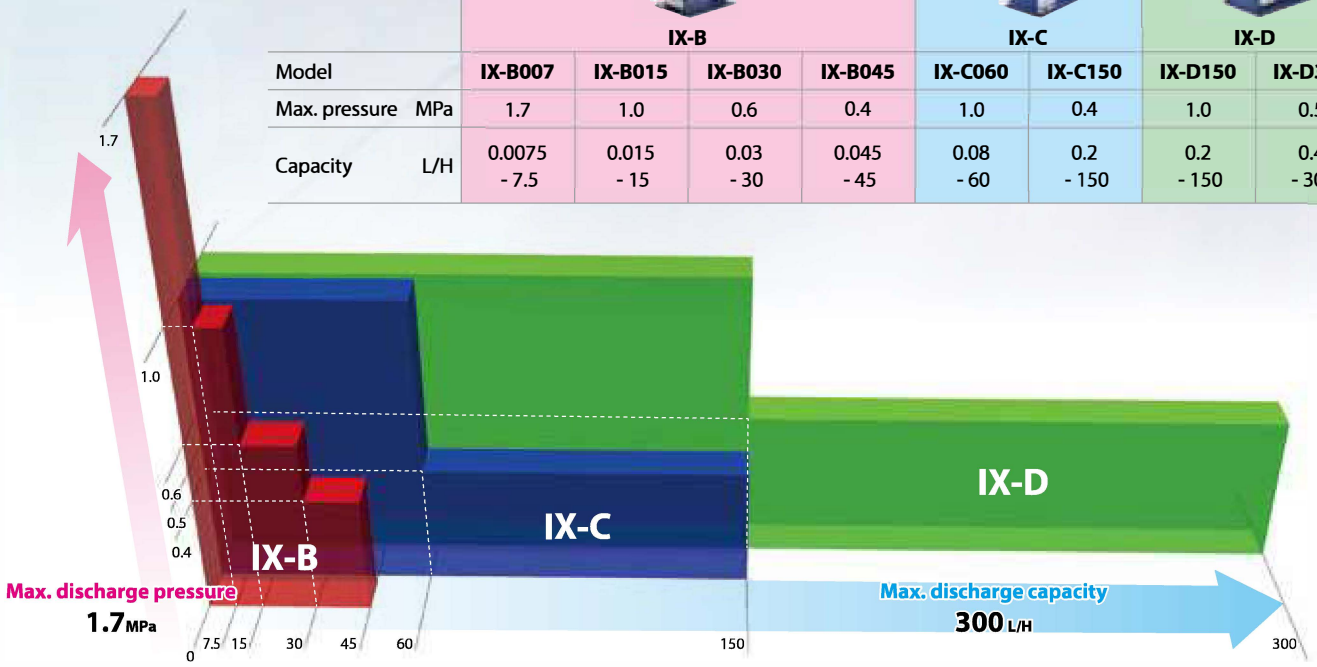

Operation history


Flexible Installation

High turn down ratio

Max. capacity range : 0.0075 - 300L/H, Max. pressure : 1.7MPa covers wide flow range.

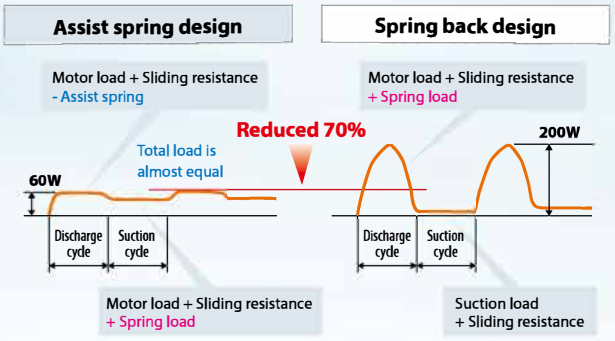
		IX-B				IX-C		IX-D	
Model		IX-B007	IX-B015	IX-B030	IX-B045	IX-C060	IX-C150	IX-D150	IX-D300
Max. pressure	MPa	1.7	1.0	0.6	0.4	1.0	0.4	1.0	0.5
Capacity	L/H	0.0075 - 7.5	0.015 - 15	0.03 - 30	0.045 - 45	0.08 - 60	0.2 - 150	0.2 - 150	0.4 - 300



Energy savings and Eco-friendly

With the use of helical gears and spring assistance, power consumption is reduced by 70% compared to the standard spring back design.

*For IX-C type



Precise chemical dosing operation

The valve design maintains precise dosing at any flow rate whilst the motor regulates discharge and suction speeds to achieve high accuracy (+/-1%) all with a cost effective design from a mechanically driven diaphragm pump.

*Some low flow rate areas are excluded.

Efficient pump head design is incorporated with high compression

Fast priming without air locks is achieved with a high compression ratio due to a fixed (maximum) stroke length.

Maximum suction lift:

2m With an open discharge line and dry valve condition.

Degassing ability :

IX- B007: 1.0MPa
IX- B030: 0.6MPa
IX- C060: 1.0MPa
IX- D150 :1.0MPa
IX- B015: 1.0MPa
IX- B045: 0.4MPa
IX- C150: 0.4MPa
IX- D300: 0.5MPa

With a standard tubing layout.

Viscous liquid transfer

Standard IX series is capable of pumping liquid viscosities of up to IX-B: 500mPa•s (IX-B045), IX-C: 1000mPa•s, IX-D: 300mPa•s. Contact us for higher viscosity applications.

*When transferring viscous liquid, the discharge rate may decrease. Custom orders are also available for viscosities of 1000 mPa • s and above. Please contact us for details.

IP65

Drive and control units are sealed separately to an IP65 enclosure.

Compliant to world standards

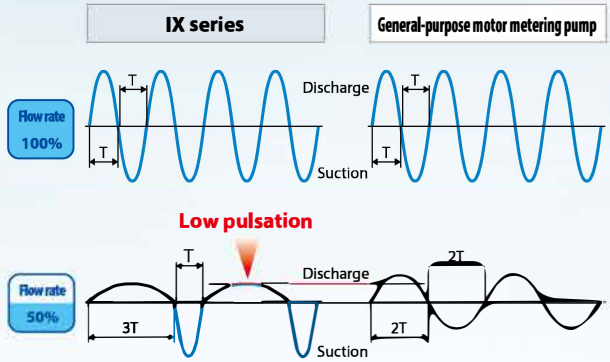
One of the IX features is multi-voltage operation (100-240VAC) compatible worldwide. Compliant to UL, CE standards.

Constant injection with low impact

Flow control via discharge speed adjustment (with a fixed suction speed) assures constant injection at any flow rate. This system also reduces impact (inertia force) and load to the discharge line.

Cavitation prevention

When pumping viscous liquids, suction stroke speed can be varied to avoid developing cavitation.
(Programmable suction speed: 75%, 50% or 25% of the normal speed)



Degassing

Keypad operation or the contact signal (AUX) runs the pump at maximum spm in any mode for degassing.

Calibration

The pump is calibrated prior to shipment, however we recommend re-calibration when installed in your system due to pipe layout and liquid properties.

Operation history

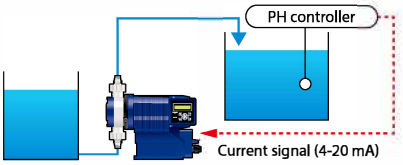
Controller memory logs the total power connection time, operating time, number of strokes and number of power-up events.

Automatic control

The IX can run in analogue, pulse, batch or interval batch modes.

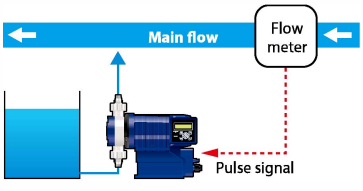
Analogue operation

The pump operates in response to an input, (4-20mA) from a controller.



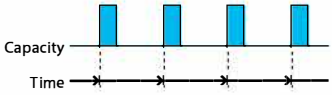
Pulse operation

When combined with a flow meter or contact head water meter, the IX pump gives a paced dose rate in proportion to the main flow rate.



Interval batch operation

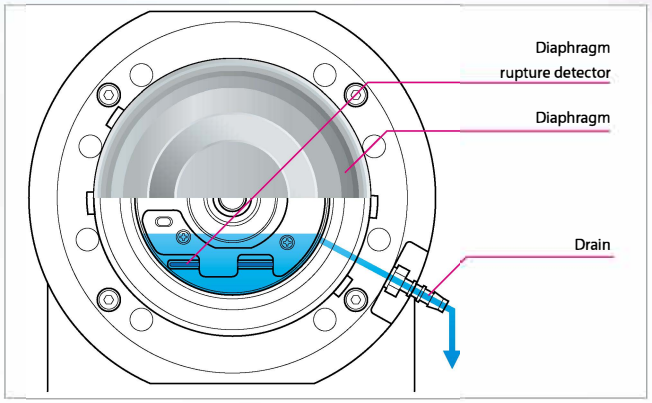
Timed operation is possible with simple pump programming via the keypad and is initiated with a pulse signal.



Safety design

Standard to all models is a diaphragm rupture detector, protecting users and the environment. Also, a detector for abnormal operation protects the pipework in case of an accidental high discharge pressure caused by clogging or improper operation. A drain hole also ensures safe operation even when the diaphragm is damaged.

*In some cases it may not be able to detect sudden rises in pressure occurring in shutoff operation. If the piping or machinery in use has low pressure resistance, install a separate safety valve.



IX-B with excellent utility

Excellent corrosion resistance

PVDF with excellent corrosion resistance is used as standard for the wet end materials. The 100% fluororesin diaphragm also supports liquid transfer, which is easily permeable to gas.

LED Status Bar

A large LED status bar provides simple visual indication of operating conditions at a glance. It is easily visible to see the pump status at a distance or in dark locations.

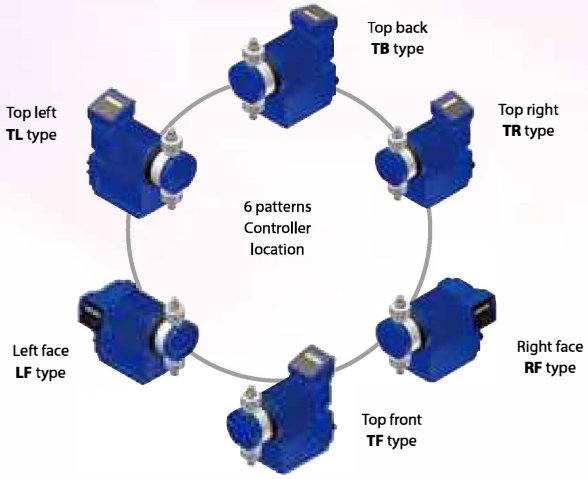
Flexible Connections

Tubing, Threaded, Flanged or Union (Made by George Fisher) connections are available as standard options providing easy installation for any application.

User friendly design

Operator mind design (IX-C/D)

The controller position can be selected from 6 mounting positions for operator convenience. Also, a character LCD with LED backlight and optimized keypad positions assist easy operation.



Flexible Installation Patent

(Patented country : Japan, USA, Germany, France, Denmark, China)

The IX-B Pumps have been designed to be installed into various locations. The control unit can easily be repositioned by customers on-site. The pump can also be relocated from base mounted to wall mounted without any extra parts required.

*IX-B-S6 cannot be wall-mounted.

Upward 4 directions (every 90 degrees)

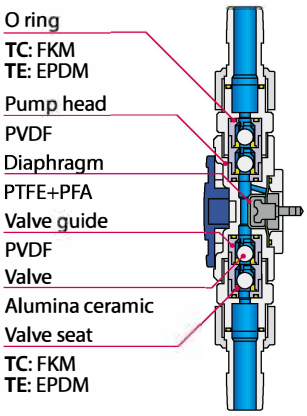
Two steps on both sides (every 35 degrees)

1. Remove the pump base.
2. Fix the pump base.
3. Hook the pump body.
4. Fix it with an adapter.

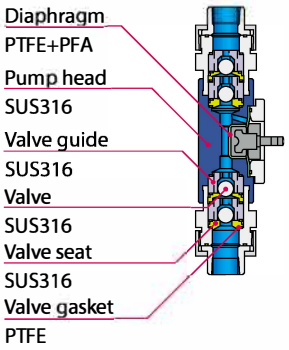
Installation example (with wall)

Construction and materials

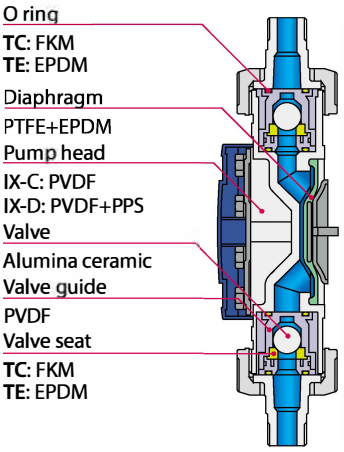
IX-B (TC/TE)



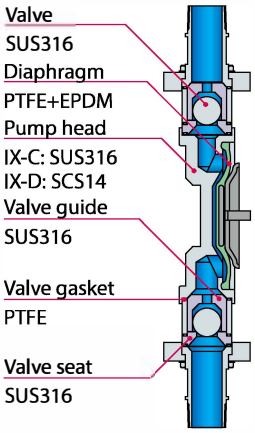
IX-B (S6)



IX-C (TC/TE)
IX-D (TC/TE)



IX-C (S6)
IX-D (S6)



Note : PPS of the pump head and PFA/EPDM of the diaphragm is not wet end materials.

Identification

IX-B

IX - B 007 TC R - E □□
① ② ③ ④ ⑤ ⑥

① Drive unit
B

② Pump size
007 : 7.5L/H
015 : 15L/H
030 : 30L/H
045 : 45L/H

③ Liquid-end material
TC, TE
Please refer to above figure.

④ Connection
R : Thread (R)
N : Thread (NPT)
G : Thread (G)
F : Flange
T : Tube

⑤ Type of power code
E : Europe
A : Australia
J : Asia
U : USA (115V)
U2 : USA (230V)

⑥ Special arrangement code
No code : Standard models
□□ : Customized models

	Europe	Australia	Asia	USA
007/015	Ø4×Ø6	Ø6×Ø8	Ø4×Ø9, Ø4×Ø6	1/4"×3/8"
030/045	Ø9×Ø12	Ø9×Ø12	Ø8×Ø13, Ø9×Ø12	3/8"×1/2"

IX-C

IX - C 150 TC R - TB 2 - E □
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Drive unit
C

② Pump size
060 : 60L/H
150 : 150L/H

③ Liquid-end material
TC, TE, S6
Please refer to above figure.

④ Connection
R : Thread (R)
N : Thread (NPT)
FJ : Flange (JIS)
FD : Flange (DIN)
FA : Flange (ANSI)

⑤ Controller position
TB : Top back
TF : Top front
TR : Top right
TL : Top left
RF : Right face
LF : Left face

⑥ Model code control number
1 : C060
2 : C150

⑦ Type of power code
E : Europe
J : Japan
U : USA (115V)
U2 : USA (230V)

⑧ Special arrangement code
No code : Standard models
S : Customized models

IX-D

IX - D 150 TC R - TB □ - E □
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Drive unit
D

② Pump size
150 : 150L/H
300 : 300L/H

③ Liquid-end material
TC, TE, S6
Please refer to above figure.

④ Connection
R : Thread (R)
N : Thread (NPT)
FJ : Flange (JIS)
FD : Flange (DIN)
FA : Flange (ANSI)

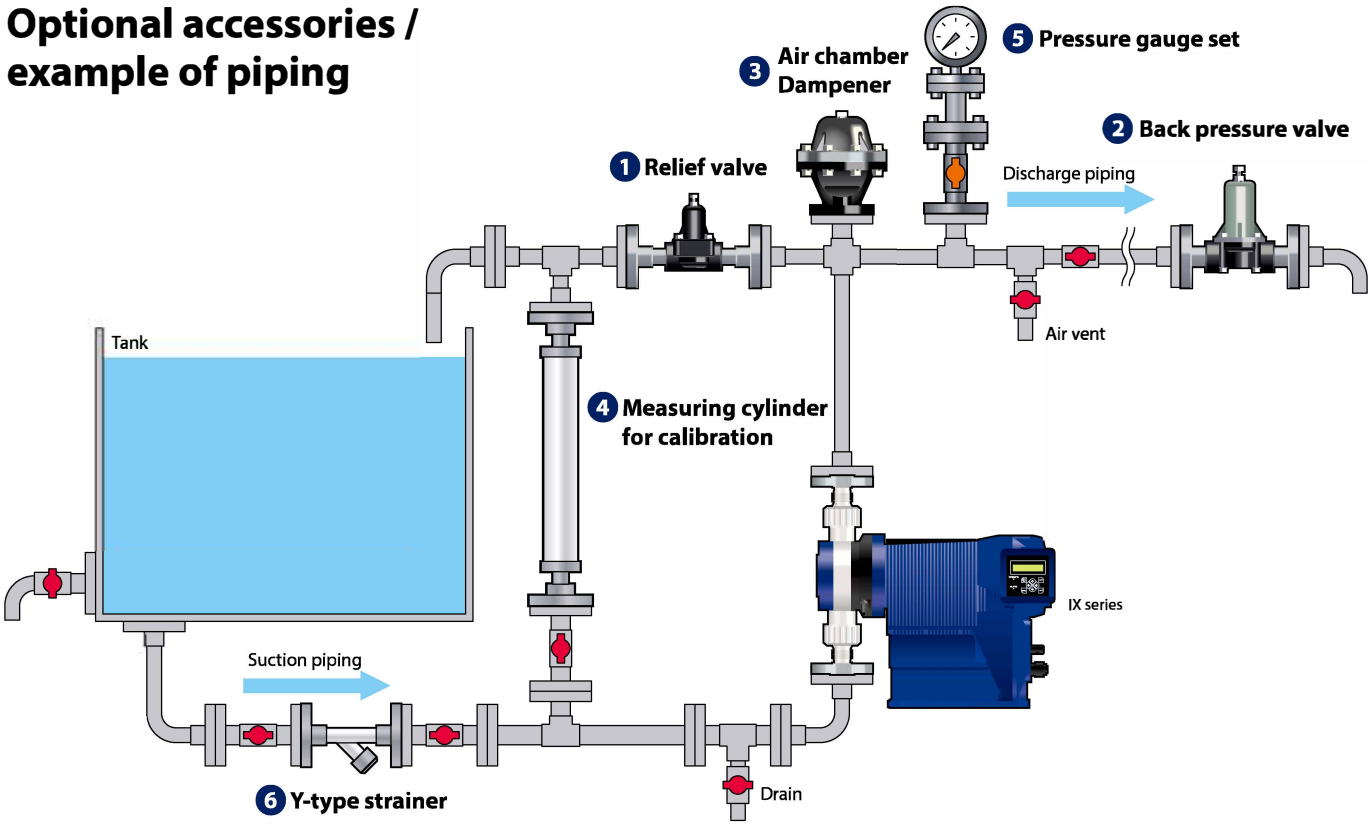
⑤ Controller position
TB : Top back
TF : Top front
TR : Top right
TL : Top left
RF : Right face
LF : Left face

⑥ Model code control number
No code : D150
No code : D300

⑦ Type of power code
E : Europe
J : Japan
U : USA (115V)
U2 : USA (230V)

⑧ Special arrangement code
No code : Standard models
S : Customized models

Optional accessories / example of piping



Check valve

Attached to the hose on the discharge side. It prevents overfeeding and backflow of the chemical solution and also prevents siphon.


CAN type


CS type

Model	Material			Set pressure		Connection		Applicable pump
	Body	Spring	O-ring	MPa		IN	OUT	
CAN-1VC-M	PVC	Hastelloy C276	FKM	0.17	±0.04	Hose connection Ø4×Ø9[Note1], Ø4×Ø6	Thread connection R3/8, R1/2	IX-B007/015
CAN-1VE-M			EPDM					
CAN-2VC-M			FKM			Hose connection Ø8×Ø13[Note1], Ø9×Ø12	Thread connection R3/8, R1/2	IX-B030/045
CAN-2VE-M			EPDM					
CS-1S	SUS316		PTFE[Note2]	0.2	±0.04	Thread connection Rc1/4	Thread connection Rc1/4	IX-B007/015
CS-2S					±0.03	Thread connection Rc3/8	Thread connection Rc3/8	IX-B030/045

Note1 : Applicable hose diameter can be changed. Refer to "Connection Diameter of the Multi-connection" on page 12 for details.
Note2 : The sealing of CS type is a gasket.

Relief valve Model RV

Positive displacement pumps keep operating even in a closed-discharge condition, resulting in piping breakage or pump failure from overpressurization without a relief valve. Always install a relief valve to prevent overpressure in the discharge line.

1

Model	Material			Max. capacity	Set pressure	Connection	Applicable pump	Mass
	Body	Diaphragm	O-ring	L/min (L/H)	MPa	JIS10K Flange		kg
RV-3T□-15	PVDF	PTFE	FKM EPDM	3.0 (180)	0.3 - 1.0	15A DIN PN10 DN15 ANSI 150LB 1/2"[Note2]	IX-B, C060	0.7
RV-3T□-20						20A	IX-C 150 IX-D 150	0.8
RV-3T□-MS					0.3 - 1.0[Note1]	Hose connection Ø4x6, Ø4x9	IX-B007/015	0.5
RV-3T□-ML						Hose connection Ø8x13, Ø9x12	IX-B030/045	
RV-3T□-R						Thread connection R1/2	IX-B	
RV-3T□-N						Thread connection 1/2NPT		
RV-3T□-G						Thread connection G3/4		
RV-3P-15	PVC		PTFE	3.0 (180)	0.3 - 1.0	15A	IX-B, C060	0.6
RV-3P-20						20A	IX-C 150 IX-D150	
RV-3P-25						25A	IX-D300	0.9
RV-7TV-15	PVDF	PTFE	FKM	7.5 (450)	0.3 - 0.8	15A	IX-B, C060	5
RV-7TE-15			EPDM					
RV-7TV-25			FKM			25A	IX-D300	
RV-7TE-25			EPDM					
RV-2S6-15	SUS316 SCS 14		PTFE	2.0 (120)	0.3 - 0.8	15A (JIS16K)	IX-B, C060	3.5
RV-2S6B-15					0.8 - 1.5			
RV-7S6-20				7.5 (450)	0.3 - 0.8	20A (JIS16K)	IX-C 150 IX-D 150	6
RV-7S6B-20					0.8 - 1.5			
RV-7S6-25				7.5 (450)	0.3 - 0.8	25A (JIS16K)	IX-D300	6
RV-7S6B-25					0.8 - 1.5			

Note1 : When connecting a hose, use it at a hose normal pressure or less. When used with the IX-B007T (C/E) type pump, it can be installed in a pressure range of 0.3 to 1.7 MPa. However, the maximum flow rate is 0.125L/min (7.52L/H).
Note2 : The flange is a shared product that complies with the standards listed in the table.

Optional accessories

Back pressure valve Model BV

Install a back pressure valve when discharge-line pressure is less than 0.03 MPa or less than suction-line pressure. Pump check valves may otherwise not operate correctly and overfeeding may result. Differential pressure between discharge and suction lines must be 0.03 MPa or more and also greater than the inertia resistance (Pid or Pis, whichever greater). Differential pressure (0.03 MPa or more) > Inertia resistance (Pid or Pis, whichever is greater)

PVDF type

2

PVC type

Model	Material Body	Material Diaphragm	Material O-ring	Max. capacity L/ min (L/H)	Set pressure MPa	Connection JIS10K Flange	Applicable pump	Mass kg
BV-3T□-15	PVDF		FKM EPDM	0.000125 (0.0075) - 3.0 (180)	0.1 - 0.8[Note1]	15A DIN PN10 DN15 ANSI 150LB 1/2" [Note2]	IX-B, C060	0.7
BV-3T□-20						20A	IX-C150 IX-D150	0.8
BV-3T□-MS						Hose connection Ø4×6, Ø4×9	IX-B007/015	0.5
BV-3T□-ML						Hose connection Ø8×13, Ø9×12	IX-B030/045	
BV-3T□-R						Thread connection R1/2	IX-B	
BV-3T□-N						Thread connection 1/2NPT		
BV-3T□-G						Thread connection G3/4		
BV-3P-15	PVC		PTFE	0.03 -3.0 (1.8 -180)		15A	IX-C060	0.6
BV-3P-20						20A	IX-C150 IX-D150	
BV-3NV-15	PVC		FKM	0.005 - 3.0 (0.3 - 180)	0.1 - 0.3	15A	IX-B, C060	0.6
BV-3NV-20						20A	IX-C150 IX-D150	
BV-3NE-15			EPDM			15A	IX-B, C060	0.6
BV-3NE-20						20A	IX-C150 IX-D150	
BV-7TV-15	PVDF	PTFE	FKM	0.2 - 7.5 (12 - 450)	0.05 - 0.8	15A	IX-B, C060	5
BV-7TE-15			EPDM					
BV-7V-20	PVC		PTFE	0.2 - 7.5 (12 - 450)	0.05 -0.8	20A	IX-C150 IX-D150	3.5
BV-7F-C17	PVDF					Thread connection Rc1/2	IX-B	
BV-7F-C18						Thread connection Rc3/4		
BV-7TV-25	PVDF	PTFE	FKM	0.2 - 7.5 (12 - 450)	0.05 - 0.8	25A	IX-D300	5
BV-7TE-25			EPDM					
BV-2S6-15	SUS316 SCS14		PTFE	0.02 -2.0 (1.2 -120)	0.05 - 0.8	15A (JIS16K)	IX-B, C060	3.5
BV-2S6-C17						Thread connection Rc1/2	IX-B	
BV-2S6-C18						Thread connection Rc3/4		
BV-7S6-20				2.0 - 7.5 (12 - 450)	0.1 - 0.8	20A (JIS16K)	IX-C150 IX-D150	6
BV-7S6-25						25A (JIS16K)	IX-D300	

Contact us for use at smaller flow rates than the above.
Note1: When connecting a hose, use it at a hose normal pressure or less.
Note2: The flange is a shared product that complies with the standards listed in the table.

Air chamber Model A

The air chamber reduces flow pulsation to prevent piping vibration and overfeeding. An air chamber designed for slurry transfer is also available.
Contact us for detail.

SUS type

3

PVC type

Model	Material Body	Material O-ring	Capacity L	Max. pressure MPa	Connection JIS10K Flange	Applicable pump	Mass kg
A-1VV	PVC	FKM	1.0	0.5	15 - 25A (common)	IX-B, C060	2
A-1VE		EPDM					
A-2VV		FKM	2.0			IX-C150 IX-D150	2.5
A-2VE		EPDM					
A-5VV		FKM	5.0			IX-D300	4.5
A-5VE		EPDM					
A-05S6-10	SUS316		0.5	0.9	10A	IX-B	3
A-05S6-15					15A		
A-05S6-20					20A		
A-1S6-15			1.5		15A	IX-C060/150 IX-D150	5
A-1S6-20					20A		
A-1S6-25					25A		
A-5S6-25			5.0		25A	IX-D300	12
A-5S6-40					40A		

Contact us for other materials.

Dampener

Installed on the discharge side. Reduces pulsation and prevents piping vibration.

3

AQ-10

AQ-85

Model	Material Body	Material O-ring	Capacity mL	Max. pressure MPa	Connection JIS10K Flange	Applicable pump
AQ-10TV	PVDF+PVC	FKM	164	0.05 - 0.5	Hose connection Ø4×Ø9, Ø4×Ø6	IX-B007/015
AQ-10TE		EPDM				
AQ-10TV-4		FKM			Hose connection Ø8×Ø13	IX-B030/045
AQ-10TE-4		EPDM				
AQ-85TV-15F	PVDF	FKM	1400		15A	IX-C060
AQ-85TE-15F		EPDM				
AQ-85TV-20F		FKM			20A	IX-C150 IX-D150
AQ-85TE-20F		EPDM				

The AQ-85 series is not in standard stock, so please contact us for the delivery date.

Strainer with a foot valve

Attached at the end of the suction hose. Prevents foreign matter from entering the pump chamber and water level fall in the suction hose when the pump is stopped.

Model	Material				Hose Connection	Applicable pump
	Body	Strainer	Valve	O-ring		
FSVN-1	PVC	Fluoro resin (ETFE)	Alumina ceramic	FKM	Ø4×Ø9	IX-B007/015
FSVN-2					Ø4×Ø6	
FSVN-4					Ø8×Ø13	IX-B030/045
FSVN-5					Ø9×Ø12	
FSEN-1	PVC	Fluoro resin (ETFE)	Hastelloy C276	EPDM	Ø4×Ø9	IX-B030/045
FSEN-2					Ø4×Ø6	
FSEN-4					Ø8×Ø13	
FSEN-5					Ø9×Ø12	
FSTCN-2	PVDF	Fluoro resin (ETFE)	Alumina ceramic	FKM	Ø4×Ø6	IX-B007/015
FSTCN-6					Ø10×Ø12	IX-B030/045

Mesh size : #20

Measuring cylinder for calibration

Used to calibrate the discharge rate of the pump. Installed on the suction side to measure the suction amount.

4

Model	Material	Capacity mL	Connection	Applicable pump
CC-PVC-500-FD	PVC	500	DIN15	IX-B
CC-PVC-1000-FD		1000		IX-C060
CC-PVC-2000-FD		2000	DIN20	IX-C/D150
CC-PVC-4000-FD		4000		IX-D300

Pressure gauge set

A convenient unit that combines a pressure gauge and a stop valve. Necessary to check the discharge pressure and control air supply to the air chamber. PVC type and SUS type are available.

5

Type	Line up	Material			Connection diameter	Max. pressure MPa
		Valve	Diaphragm	Sealing material		
PVC type	0.3MPa×Ø100×15A	PVC	PTFE	FKM (Ball valve FKM type) EPDM (Ball valve EPDM type) PTFE (Diaphragm valve type)	Flange connection 15A	0.3
	0.5MPa×Ø100×15A					0.5
	0.6MPa×Ø100×15A					0.6
	1.0MPa×Ø100×15A					1.0
SUS316 type	0.3MPa×Ø100×15A	SUS316	PTFE	PTFE	Flange connection 15A	0.3
	0.5MPa×Ø100×15A					0.5
	0.6MPa×Ø100×15A					0.6
	1.0MPa×Ø100×15A					1.0

Y-type strainer

Installed in the suction piping to prevent dirt and foreign matter from entering the pump chamber. PVC type and SUS type are available.

6

Type	Line up	Material		Connection diameter
		Body	Sealing material	
PVC type FKM	15A, FKM	PVC	FKM	15A
	25A, FKM			25A
PVC type EPDM	15A, EPDM		EPDM	15A
	25A, EPDM			25A
SUS type	15A	SUS	PTFE	15A
	20A			20A
	25A			25A

Mesh size : #40

DIN 5-pin connector cable
External control signal cable (5m)
(External control signal input)
Selection No. IX0018

DIN 5-pin connector cable
STOP signal and AUX signal cable (5m)
(STOP signal input)
Selection No. IX0019

DIN 4-pin connector cable
Output signal cable (5m)
(Signal output)
Selection No. IX0020

Profibus converter
Profibus communication

Specifications

Pumps

Model		Capacity L/hr	Max. pressure MPa	Max. viscosity mPa•s	Liquid temperature range °C	Connection	Power consumption W	Current A	Mass kg
IX-B007 (TC/TE)	R	0.0075 - 7.5	1.7	—[Note2, 3]	0 - 50	R1/2	17	0.4	3.5
	N					1/2 NPT			
	G					G3/4			
	T		1.7[Note1]			Please refer to Pump identification.			
	F		1.0			JIS10K 15A, DIN PN10 DN15, ANSI 150LB 1/2" [Note5]			3.7
IX-B007 S6	R	0.0075 - 7.5[Note4]	1.7	1000[Note2]	0 - 80	Rc3/8	17	0.4	4.5
	N					3/8 NPT			
	F☐		1.0			FJ: JIS 10K 15A, FD: DIN PN10 DN15, FA: ANSI 150LB 1/2"			6.0
IX-B015 (TC/TE)	R	0.015 - 15	1.0	100[Note2, 3]	0 - 50	R1/2	17	0.4	3.5
	N					1/2 NPT			
	G					G3/4			
	T		1.0[Note1]			Please refer to Pump identification.			
	F		1.0			JIS10K 15A, DIN PN10 DN15, ANSI 150LB 1/2" [Note5]			3.7
IX-B015 S6	R	0.015 - 15	1.0	1000[Note2]	0 - 80	Rc3/8	17	0.4	4.5
	N					3/8 NPT			
	F☐					FJ: JIS 10K 15A, FD: DIN PN10 DN15, FA: ANSI 150LB 1/2"			6.0
IX-B030 (TC/TE)	R	0.030 - 30	0.6	100[Note2, 3]	0 - 50	R1/2	19	0.5	3.7
	N					1/2 NPT			
	G					G3/4			
	T		0.6[Note1]			Please refer to Pump identification.			
	F		0.6			JIS10K 15A, DIN PN10 DN15, ANSI 150LB 1/2" [Note5]			3.9
IX-B030 S6	R	0.030 - 30	0.6	1000[Note2]	0 - 80	Rc3/8	19	0.5	5.0
	N					3/8 NPT			
	F☐					FJ: JIS 10K 15A, FD: DIN PN10 DN15, FA: ANSI 150LB 1/2"			6.5
IX-B045 (TC/TE)	R	0.045 - 45	0.4	500[Note2, 3]	0 - 50	R1/2	19	0.5	3.7
	N					1/2 NPT			
	G					G3/4			
	T		0.4[Note1]			Please refer to Pump identification.			
	F		0.4			JIS10K 15A, DIN PN10 DN15, ANSI 150LB 1/2" [Note5]			3.9
IX-B045 S6	R	0.045 - 45	0.4	1000[Note2]	0 - 80	Rc3/8	19	0.5	5.0
	N					3/8 NPT			
	F☐					FJ: JIS 10K 15A, FD: DIN PN10 DN15, FA: ANSI 150LB 1/2"			6.5
IX-C060 (TC/TE)	R	0.08 - 60[Note4]	1.0	1000[Note2]	0 - 50	R1/2	62	0.8	8
	N					1/2 NPT			
	F☐					FJ: JIS 10K 15A, FD: DIN PN10 DN15, FA: ANSI 150LB 1/2"			9
IX-C060 S6	R				0 - 80	R1/2			10.5
	N					1/2 NPT			
	F☐					FJ: JIS 10K 15A, FD: DIN PN10 DN15, FA: ANSI 150LB 1/2"			12
IX-C150 (TC/TE)	R	0.2 - 150[Note4]	0.4	1000[Note2]	0 - 50	R3/4	62	0.8	9
	N					NPT 3/4			
	F☐					FJ: JIS10K20A, FD: DIN PN16 DN20, FA: ANSI 150LB 3/4"			
IX-C150 S6	R				0 - 80	R3/4			11
	N					NPT 3/4			
	F☐					FJ: JIS10K20A, FD: DIN PN10 DN20, FA: ANSI 150LB 3/4"			13
IX-D150 (TC/TE)	R	0.2 - 150	1.0	300[Note2, 3]	0 - 50	R3/4	110	1.3	14.5
	N					3/4 NPT			
	F☐					FJ: JIS10K20A, FD: DIN PN16 DN20, FA: ANSI 150LB 3/4"			
IX-D150 S6	R	0.2 - 150[Note4]	1.0	300[Note2, 3]	0 - 80	R3/4	110	1.3	15
	N					3/4 NPT			
	F☐					FJ: JIS10K20A, FD: DIN PN10 DN20, FA: ANSI 150LB 3/4"			17
IX-D300 (TC/TE)	R	0.4 - 300	0.5	300[Note2, 3]	0 - 50	R1	110	1.3	15.5
	N					1 NPT			
	F☐					FJ: JIS10K 25A, FD: DIN PN16 DN25, FA: ANSI 150LB 1"			
IX-D300 S6	R	0.4 - 300[Note4]	0.5	300[Note2, 3]	0 - 80	R1	110	1.3	17
	N					1 NPT			
	F☐					FJ: JIS10K 25A, FD: DIN PN10 DN25, FA: ANSI 150LB 1"			19.5

Note1 : Use below the maximum allowable pressure of a connected tube. Note3 : A dedicated valve is required when using with high-viscosity liquid.
Note2 : When transferring viscous liquid, the discharge rate may decrease. When selecting a pump, allow a margin for the discharge amount.
Note4 : For the IX-B, accuracy is not guaranteed at flows below 30 mL/h. For the IX-C060, accuracy is not guaranteed at flows below 0.4 L/h. For the IX-C150, accuracy is not guaranteed at flows below 1.0 L/h. For the IX-D150, accuracy is not guaranteed at flows below 1.5 L/h. For the IX-D300, accuracy is not guaranteed at flows below 3.0 L/h.
Note5 : Flanges will be shared with the standards listed in the table.
• The above is the value at rated voltage, ambient temperature and clear water. • The pressure at which the abnormal pressure detection function operates is 1.3 to 2 times the maximum discharge pressure.
• No viscosity change, Non freezing, No slurry. • The max. discharge capacity is obtained in operation with clear water at ambient temperature and the max. discharge pressure. It gets higher as the pressure gets lower.
• Operating humidity range: 30-90%RH (Non condensing in the controller) • Operating temperature range: 0-50 °C (Indoor use only) • Contact us for other plumbing connections.

Controllers

Operation mode	MAN (Manual)			Use the UP and DOWN keys to set a flow rate.	
	EXT	Analog fixed operation		4–20, 0–20, 20–4, 20–0 mA (Proportional to the discharge rate)	
		Analog variable operation		Programmable 2-point setting (Input signal DC 0–20 mA, proportional to the discharge rate)	
		Pulse control-Note1	IX-B	0.000625mL/PLS - 15.000000mL/PLS (IX-B007) 0.002500mL/PLS - 60.000000mL/PLS (IX-B030)	0.001250mL/PLS - 30.000000mL/PLS (IX-B015) 0.003750mL/PLS - 90.000000mL/PLS (IX-B045)
			IX-C	0.00625mL/PLS - 120mL/PLS (IX-C060)	0.01560mL/PLS - 300mL/PLS (IX-C150)
			IX-D	0.01560mL/PLS - 300mL/PLS (IX-D150)	0.03120mL/PLS - 600mL/PLS (IX-D300)
		Batch control-Note1	IX-B	0.625mL/PLS - 15.000L/PLS (IX-B007)	1.250mL/PLS - 30.000L/PLS (IX-C150)
				2.500mL/PLS - 60.000L/PLS (IX-B030)	3.750mL/PLS - 90.000L/PLS (IX-B045)
			IX-C	6.25mL/PLS - 120L/PLS (IX-C060)	15.6mL/PLS - 300L/PLS (IX-C150)
			IX-D	15.6mL/PLS - 300L/PLS (IX-D150)	31.2mL/PLS - 600L/PLS (IX-D300)
		Interval batch controlNote1		Day: 0 - 9, Hour: 0 - 23, Minute: 1 - 59	
			IX-B	0.625mL/PLS - 15.000L/PLS (IX-B007) 2.500mL/PLS - 60.000L/PLS (IX-B030)	1.250mL/PLS - 30.000L/PLS (IX-B015) 3.750mL/PLS - 90.000L/PLS (IX-B045)
			IX-C	6.25mL - 120L (IX-C060), 15.6mL - 300L/PLS (IX-C150)	
			IX-D	15.6mL - 300L (IX-D150), 31.2mL - 600L/PLS (IX-D300)	
		Profibus controlNote2		Communication protocol: Profibus-DP-compliant international standard: EN50170 (IEC61158)	
Monitors	LCD			16 digits × 2 lines, backlight character LCD	
	LED		IX-B	White: When the pump is stopped etc., Green: During pump operation etc., Orange: When entering Pre-Stop etc., Red: When alarm such as abnormal pressure detection etc.	
			IX-C IX-D	OPERATE Lights in green color during pump operation. Lights in orange color when a Pre-Stop signal is input. Lights in red color when the pump has stopped or flashes when overload is detected. ALARM Red: Lights up when Alarm1 or Alarm2 is output	
Operation	Keypads			(⏻)Start/Stop, MENU, ESC, (↵)Enter, (↑)Up, (↓)Down, (←)Left and (→)Right keys	
Control function	STOP			Operation stops with input contactNote3	
	PRIME			Max spm operation by pressing the (↑)UP and (↓)DOWN keys	
	Keylock			Password setting to lock and release operation keys	
	Interlock			Operation stops with input contactNote3	
	AUX			Pump operates at the set discharge rate with input contact.	
	Maximum discharge rate			Arbitrarily set the upper discharge limit in each operation mode.	
	Buffer memory function			Store the number of pulses entered in batch operation.	
	Analog input value display			Display the analog input value.	
Input	STOP/Pre-Stop			No-voltage contact or open collectorNote4	
	AUX			No-voltage contact or open collectorNote4	
	Interlock			No-voltage contact or open collectorNote4	
	Analogue			0 - 20mADC (Internal resistance is 200ohm.)	
	Pulse			Non-voltage contact or open collector Max pulse frequency is 100Hz. (Pulse ON: 5 msec or more)	
Output	Alarm1 (OUT1)			Non-voltage contact (mechanical relay): AC 250 V, 3 A (resistive load) Each output item is selected by Enable/Disable. Batch completeNote4/STOP/Pre-Stop/Interlock/Leak Detection/Motor Overload/Drive Error	
	Alarm2 (OUT2)			Non-voltage contact (photo relay): AC/DC 24 V, 0.1 A (resistive load) Each output item is selected by Enable/Disable. Volume Prop. PLSNote6/Batch completeNote5/STOP/Pre-Stop/Interlock/Leak Detection/Motor Overload/Drive Error	
	External power supply			DC 12 V, 30 m A or less	
	Current			DC 0–20 mA, Two-point setting (allowable load resistance: 300 Ω)	
Power voltageNote7				100-240VAC 50/60Hz	

Note1 : The minimum settings for pulse operation, batch operation, and interval batch operation are the flow rates per stroke corrected by calibration.
Also, the change rate of the setting value per pulse is the flow rates per stroke corrected by calibration.
Note2 : A separate Profibus conversion BOX (option) is required to operate Profibus on IX.
Note3 : Switches to pump operation with input contact if default state is changed in the controller settings.
Note4 : The maximum voltage and current applied to the contact are 12 V and 5 mA. If you use a contact such as a relay, the minimum applicable load must be 5 mA or less.
Note5 : When Batch Complete (batch operation complete output) is set to Enable, the other functions will be set to Disable.
Note6 : When Volume Prop. PLS output is set to Enable, the other functions will be set to Disable.
Note7 : Do not apply voltage out of the specified range. Doing so may cause malfunction or failure. The allowable voltage supply range is 90-264VAC only.

Performance

Model	Discharge line inertia resistance Pid		Suction line inertia resistance Pis		NPSHr	Viscosity		Priming lift	Applicable chamber Materials	
	L/hr	MPa/1m	(%)	MPa/1m		Standard valve	Viscous valve		SUS	PVC
IX-B007	~7.50	8.3×10^{-4}	100	8.3×10^{-4}	0.07 MPaA	—	1000 mPa•s	1 m	0.5 L	1.0 L
	~5.60	2.9×10^{-4}	75	4.6×10^{-4}						
	~3.74	9.1×10^{-5}	50	2.1×10^{-4}						
	~1.87	1.7×10^{-5}	25	5.2×10^{-5}						
IX-B015	~15.0	1.6×10^{-3}	100	1.6×10^{-3}	0.07 MPaA	100 mPa•s	1000 mPa•s	2 m	0.5 L	1.0 L
	~11.2	5.8×10^{-4}	75	9.2×10^{-4}						
	~7.50	1.8×10^{-4}	50	4.1×10^{-4}						
	~3.74	3.3×10^{-5}	25	1.0×10^{-4}						
IX-B030	~30.0	2.7×10^{-3}	100	2.7×10^{-3}	0.06 MPaA	100 mPa•s	1000 mPa•s	2 m	0.5 L	1.0 L
	~22.4	9.7×10^{-4}	75	1.5×10^{-3}						
	~15.0	3.0×10^{-4}	50	6.8×10^{-4}						
	~7.50	5.5×10^{-5}	25	1.7×10^{-4}						
IX-B045	~45.0	4.1×10^{-3}	100	4.1×10^{-3}	0.06 MPaA	500 mPa•s	1000 mPa•s	2 m	0.5 L	1.0 L
	~33.6	1.5×10^{-3}	75	2.3×10^{-3}						
	~22.4	4.6×10^{-4}	50	1.0×10^{-3}						
	~11.2	8.2×10^{-5}	25	2.6×10^{-4}						
IX-B007T (Inner diameter Ø4)	~7.50	1.3×10^{-2}	100	1.3×10^{-2}	0.07 MPaA	—	1000 mPa•s	1 m	0.5 L	1.0 L
	~5.60	4.7×10^{-3}	75	7.5×10^{-3}						
	~3.74	1.5×10^{-3}	50	3.3×10^{-3}						
	~1.87	2.7×10^{-4}	25	8.4×10^{-4}						
IX-B015T (Inner diameter Ø4)	~15.0	2.6×10^{-2}	100	2.6×10^{-2}	0.07 MPaA	100 mPa•s	1000 mPa•s	2 m	0.5 L	1.0 L
	~11.2	9.4×10^{-3}	75	1.5×10^{-2}						
	~7.50	2.9×10^{-3}	50	6.6×10^{-3}						
	~3.74	5.3×10^{-4}	25	1.7×10^{-3}						
IX-B030T (Inner diameter Ø8)	~30.0	1.1×10^{-2}	100	1.1×10^{-2}	0.06 MPaA	100 mPa•s	1000 mPa•s	2 m	0.5 L	1.0 L
	~22.4	3.9×10^{-3}	75	6.2×10^{-3}						
	~15.0	1.2×10^{-3}	50	2.8×10^{-3}						
	~7.50	2.2×10^{-4}	25	6.9×10^{-4}						
IX-B045T (Inner diameter Ø8)	~45.0	1.6×10^{-2}	100	1.6×10^{-2}	0.06 MPaA	500 mPa•s	1000 mPa•s	2 m	0.5 L	1.0 L
	~33.6	5.9×10^{-3}	75	9.4×10^{-3}						
	~22.4	1.9×10^{-3}	50	4.2×10^{-3}						
	~11.2	3.3×10^{-4}	25	1.0×10^{-3}						
IX-C060	~60	4.4×10^{-3}	100	4.4×10^{-3}	0.08 MPaA	1000 mPa•s		2 m	1.5 L	1.0 L
	~45	1.6×10^{-3}	75	2.5×10^{-3}						
	~30	4.9×10^{-4}	50	1.1×10^{-3}						
	~6	1.2×10^{-5}	25	2.8×10^{-4}						
IX-C150	~150	6.3×10^{-3}	100	6.3×10^{-3}	0.08 MPaA	1000 mPa•s		2 m	1.5 L	2.0 L
	~113	2.3×10^{-3}	75	3.6×10^{-3}						
	~75	7.0×10^{-4}	50	1.6×10^{-3}						
	~15	1.8×10^{-5}	25	4.0×10^{-4}						
IX-D150	~150	6.3×10^{-3}	100	6.3×10^{-3}	0.08 MPaA	300 mPa•s		2 m	1.5 L	2.0 L
	~113	2.3×10^{-3}	75	3.6×10^{-3}						
	~75	7.0×10^{-4}	50	1.6×10^{-3}						
	~15	1.8×10^{-5}	25	4.0×10^{-4}						
IX-D300	~300	7.2×10^{-3}	100	7.2×10^{-3}	0.08 MPaA	300 mPa•s		2 m	5.0 L	5.0 L
	~225	4.1×10^{-3}	75	4.1×10^{-3}						
	~150	8.0×10^{-4}	50	1.8×10^{-3}						
	~30	2.0×10^{-5}	25	4.5×10^{-4}						

- Pi : Inertia resistance per meter (based on clean water, suction line I.D. should be equal to the pump suction connection as a minimum.)
  Calculate inertia resistance per meter using the following formula.
  Pi = Pid (or Pis) × Specific gravity × Pipe length (m) × (Pump I.D. ÷ Pipe I.D.)2(MPa)
- Suction speed is set to 100% as the default setting. Reduce speed when handling viscous or gaseous liquids to prevent the possibility of cavitation.
  Note the suction speed is used to control maximum discharge capacity.
  e.g.) If suction speed is set to 75%, maximum discharge capacity is correspondingly reduced to 75% (45L/h for IX-C060, 113 L/h for IX-C150).
- Discharge capacity may be reduced from rated performance when pumping highly viscous liquids. Select a suitable pump size according to liquid viscosity.
  Contact us if handling liquid viscosities of over 1000 mPa•s.(IX-C) Contact us if handling liquid viscosities of over 300 mPa•s.(IX-D)
- Applicable chamber: Capacities are based on Iwaki standard chamber sizes. Contact us for chamber materials.
- High accuracy: ±1% (This accuracy may not be met at flows below 1.0 L/h for the IX-C150S6. For model IX-C060S6, accuracy may not be met at flows below 0.4 L/h)
- Liquid temperature range: 0-50 ºC(TC/TE type), 0-80 ºC(S6 type) No viscosity change, Non freezing, No slurry
  Accurate calibration may not be possible with liquid temperatures over 60ºC and discharge pressures over 0.8MPa. For optimum accuracy, calibration must be performed below these parameters.

Points to be observed in pump installation and piping

IX Series Hi-Techno pumps are positive-displacement, reciprocating pumps.
Reciprocating pumps generate pulsation in the suction and discharge piping. Special consideration,
(different from the ordinary centrifugal pumps), should be given to this point when planning the pump installation and piping.

• Prevention of pipe vibration

Discharge side inertial resistance Pid < 0.1 MPa
• Pid : Inertial resistance on discharge side

Inertial resistance means the pulsated impact force generated by the flow just upon entering discharge stroke. It is a phenomenon particular to a reciprocating pump which is generated as a result of the sudden application of acceleration to the liquid in the discharge piping. The condition "Pid < 0.1 MPa is given above as an approximate standard. If Pid becomes 0.1MPa or higher, vibration on the pipe is generated. So measures should be taken to cope with the influence of vibration on the pump, too.

Measures
1. Install pulsation prevention device (air chamber).
2. Enlarge the diameter and shorten the length of the discharge piping.

• Prevention of overfeeding

Pump differential pressure > Inertial resistance Pi
• The larger one of the suction side or the discharge side

Overfeeding means excessive flow of the liquid due to abnormal functioning of the check valve caused by pulsation of the liquid in the piping. Check carefully in case the differential pressure is low and in case the piping is too long even with the differential pressure value at 0.03 MPa.

Measures
1. Install air chamber.
2. Install back pressure valve

• Prevention of suction failure

NPSHa > NPSHr
NPSHa = Pa - Pv ± Phs - Pis * MPa
*Or Pfs : whichever is the larger. (NPSH : Net positive suction head)

If NPSHa is not sufficient, the pump may be damaged by the flow-break or cavitation generated under such conditions.

- **NPSHa:** Absolute NPSH (MPa)
- **NPSHr:** Required NPSH (value particular to the pump) (MPa)
- **Pa:** Absolute pressure onto the tank liquid surface (MPa)
- **PV:** Liquid vapour pressure (MPa)
- **Phs:** Pressure caused by the height of the suction side (MPa) (Flooded suction : +, Negative suction : –)
- **Pis:** Inertial resistance on the suction side (MPa)
- **Pfs:** Piping resistance on the suction side (MPa)

See the table below for NPSHr, inertia resistance(Pi) and applicable chambers.

⚠ Compressed air dissolves in solutions in a chamber. Supply air into the chamber periodically, or its performance may reduce.
It takes longer time for air to be compressed enough to deliver liquid as a flow rate gets lower.

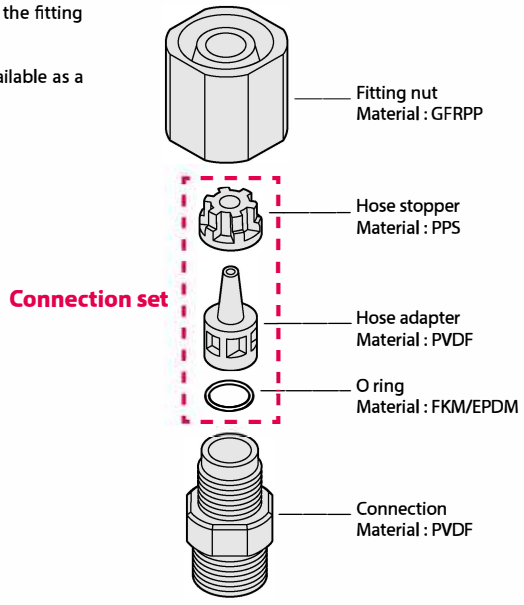
• Pump/Piping protection

Install a relief valve to protect the pump and piping from overpressure.

Connection diameter of multi-joint

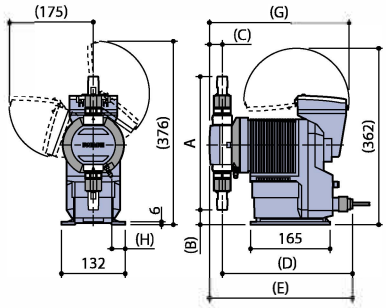
The applicable hose diameter can be switched by removing the fitting nut and recombining the hose stopper and hose adapter.

In addition, a hose stopper, hose adapter, and O-ring are available as a connection set. Please see the chart on the right for details.

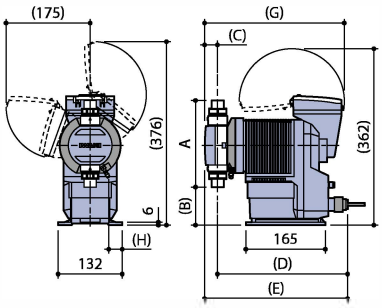


Dimension in mm

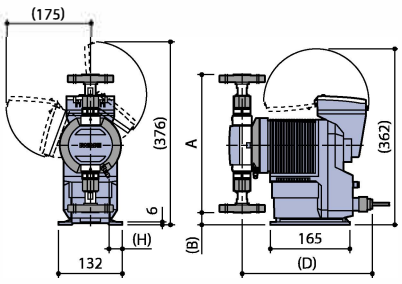
IX-B (TC/TE) Connection : R (Thread R)



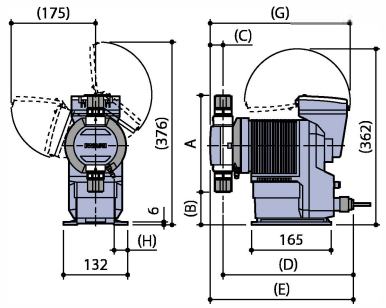
IX-B (TC/TE) Connection : G (Thread G)



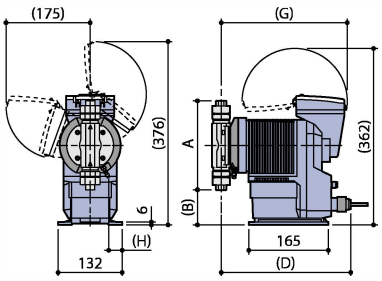
IX-B (TC/TE) Connection : F (Flange)



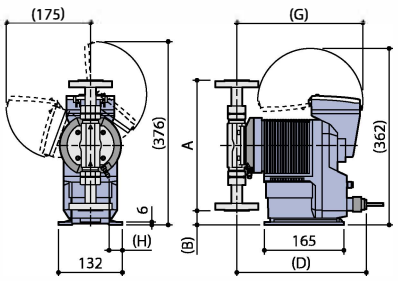
IX-B (TC/TE) Connection : T (Tube)



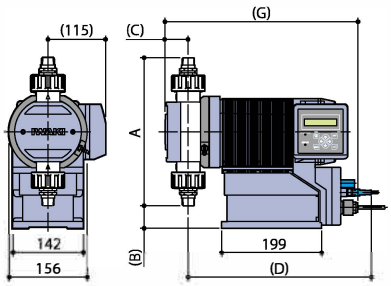
IX-B (S6) Connection : R (Thread R)



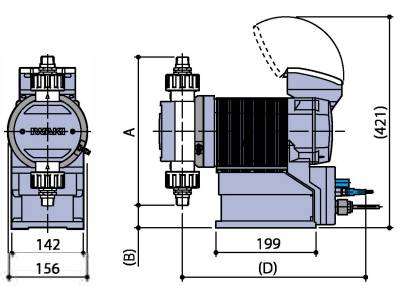
IX-B (S6) Connection : F□ (Flange)



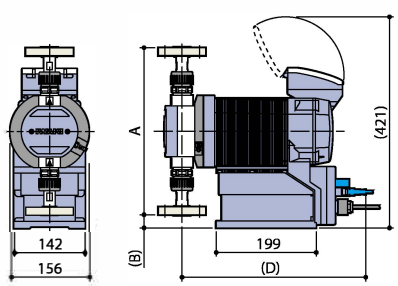
IX-C Connection : Common to all types,
Controller position : RF (Right face)



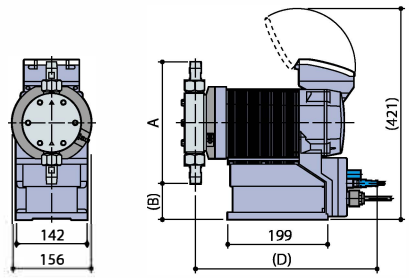
IX-C (TC/TE) Connection : R (Thread R)
Controller position : TB (Top back)



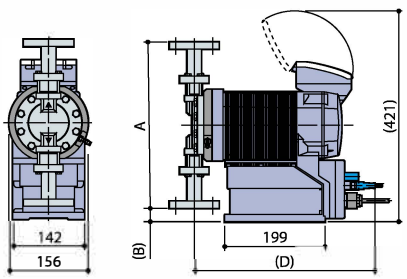
IX-C (TC/TE) Connection : F□ (Flange)
Controller position : TB (Top back)



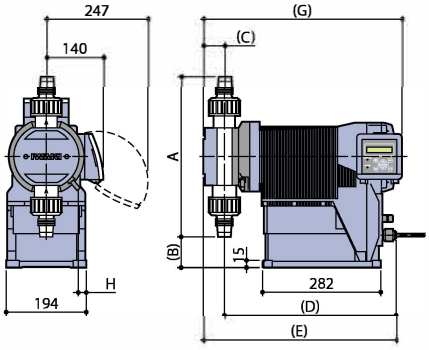
IX-C (S6) Connection : R (Thread R)
Controller position : TB (Top back)



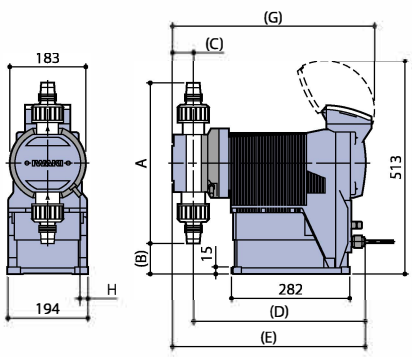
IX-C (S6) Connection : F□ (Flange)
Controller position : TB (Top back)



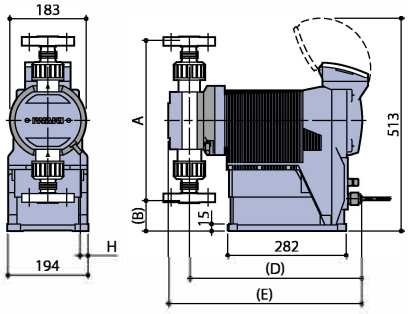
IX-D Connection : Common to all types,
Controller position : RF (Right face)



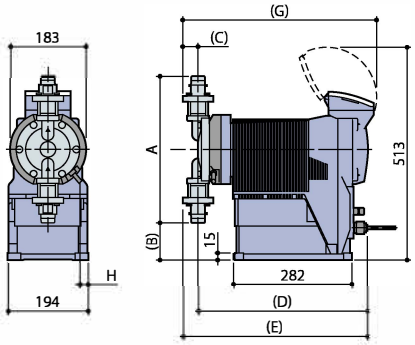
IX-D (TC/TE) Connection : R (Thread R)
Controller position : TB (Top back)



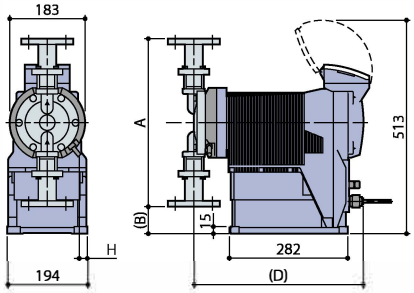
IX-D (TC/TE) Connection : F□ (Flange)
Controller position : TB (Top back)



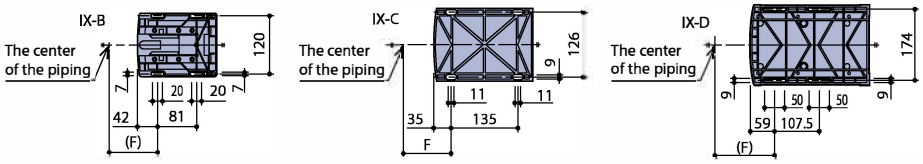
IX-D (S6) Connection : R (Thread R)
Controller position : TB (Top back)



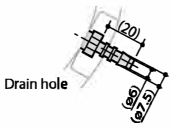
IX-D (S6) Connection : F□ (Flange)
Controller position : TB (Top back)

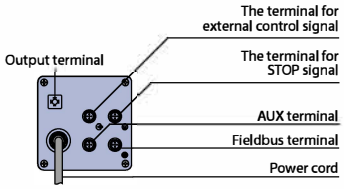


Common to IX series / Pump base



Common to all IX series / others





	Model	Liquid-end material	Connection	A	B	C	D	E	F	G	H
IX-B 	IX-B007	TC/TE	R : Thread (R)	240	45	24.3	267	291	94.5	284	29
			G : Thread (G)	146	92						
			F : Flange	250	40	—		—		—	
			T : Tube	168	81	24.3		291		284	
		S6	R : Thread (R)	161	82	—	275	—	94.5	260	29
			F□ : Flange	247	39						
	IX-B015	TC/TE	R : Thread (R)	240	41	24.3	267	291	94.5	284	29
			G : Thread (G)	155	88						
			F : Flange	259	36	—		—		—	
			T : Tube	177	77	24.3		291		284	
		S6	R : Thread (R)	161	82	—	275	—	94.5	260	29
			F□ : Flange	247	39						
	IX-B030 IX-B045	TC/TE	R : Thread (R)	273	30	26.4	270	296	97.5	289	28
			G : Thread (G)	179	77						
			F : Flange	283	25	—		—		—	
			T : Tube	201	66	26.4		296		289	
		S6	R : Thread (R)	183	72	—	278	—	97	262	28
			F□ : Flange	269	29						

	Model	Liquid-end material	Connection	A	B	C	D	E	F	G	H
IX-C 	IX-C060	TC/TE	R : Thread (R)	325	30	35	365	—	—	375	—
			F□ : Flange	335	25	—				—	
		S6	R : Thread (R)	240	72	25	365	—	—	364	—
			F□ : Flange	270	57	—				—	
	IX-C150	TC/TE	R : Thread (R)	294	45	47	365	—	—	386	—
			F□ : Flange	317	34	—				—	
		S6	R : Thread (R)	287	48	30	359	—	—	363	—
			F□ : Flange	335	24	—				—	

	Model	Liquid-end material	Connection / Controller position	A	B	C	D	E	F	G	H
IX-D 	IX-D150	TC/TE	R : Thread (R) / RF : Right face	317	108	42	409	450	144	465	—
			R : Thread (R) / TB : Top back							472	
			F□ : Flange / RF : Right face	340	97	—	409	—	144	—	—
			F□ : Flange / TB : Top back								
		S6	R : Thread (R) / RF : Right face	315	108	30	401	431	136	453	—
			R : Thread (R) / TB : Top back							460	
			F□ : Flange / RF : Right face	363	84	—	401	—	136	—	—
			F□ : Flange / TB : Top back								
	IX-D300	TC/TE	R : Thread (R) / RF : Right face	384	74	52	415	467	151	482	—
			R : Thread (R) / TB : Top back							489	
			F□ : Flange / RF : Right face	383	66	—	415	—	151	—	—
			F□ : Flange / TB : Top back								
		S6	R : Thread (R) / RF : Right face	355	88	37	408	445	143	460	—
			R : Thread (R) / TB : Top back							467	
			F□ : Flange / RF : Right face	405	63	—	408	—	143	—	—
			F□ : Flange / TB : Top back								

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