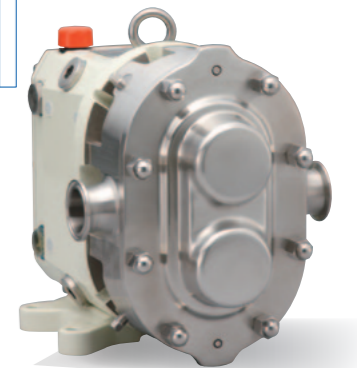
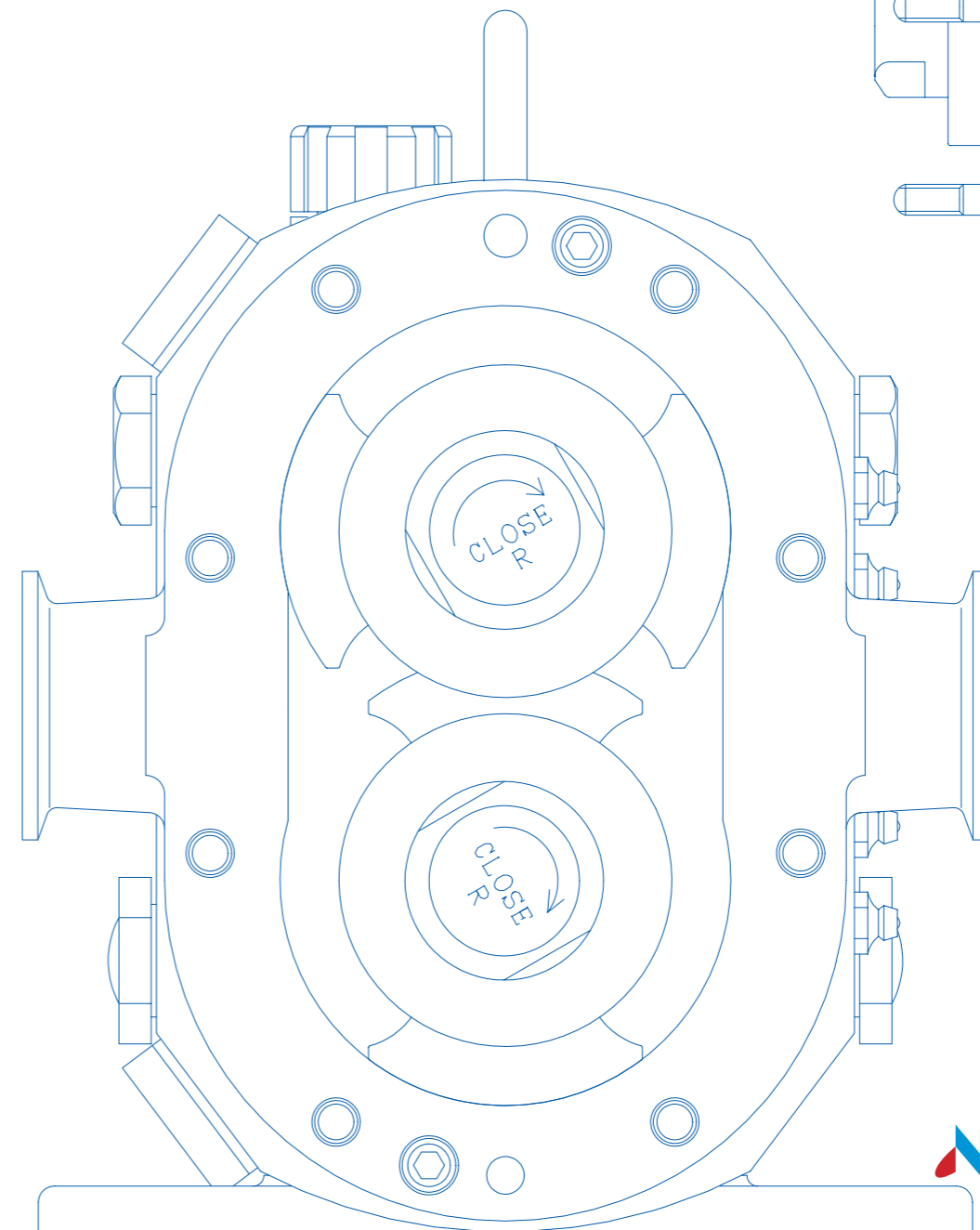
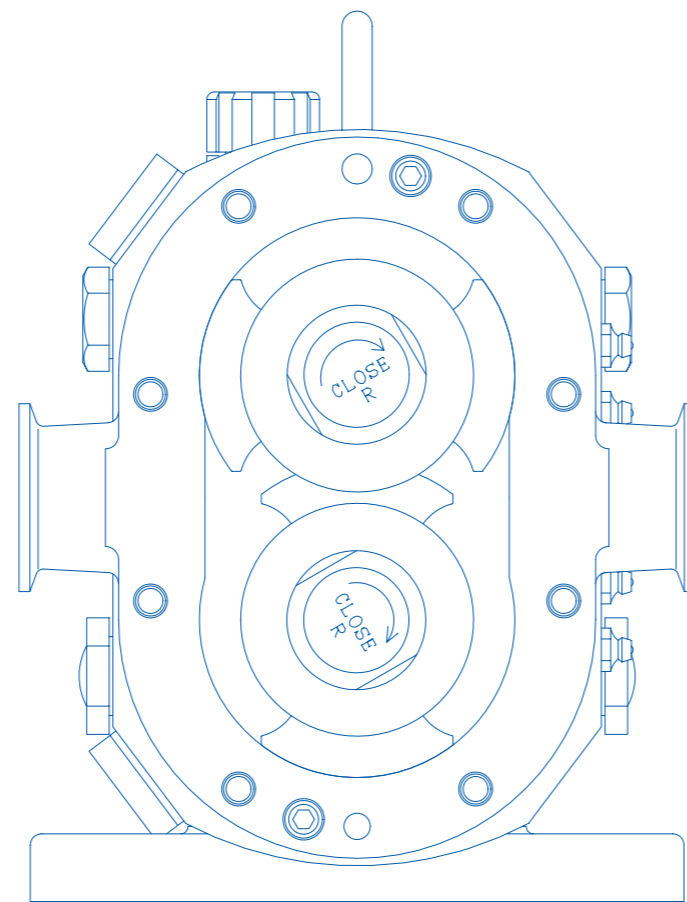


ROTARY PISTON PUMP



Manufacture:
NAKAKIN CO.,LTD.
PUMP DIVISION

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573-0137 Japan
E-mail:pumpinfo@nakakin.co.jp
www.nakakinpump.jp/e

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The contents of publishing
may be changed without prior notice.

 **NAKAKIN**

No.1 in Japan — One-Step Production. Nakakin expands to Europe, North America and world-wide!!

Since its founding in 1950, based on its die and casting technologies, Nakakin has worked actively in the automotive industry with firms such as Toyota and Mitsubishi Motors and so on. Nakakin supplies cast engine parts and develops and produces metal dies. Nakakin's technologies also produce quality pumps. Our unique one-step production ensures quality processing from primary raw-material cast products and parts production to pump assembly, performance testing, and direct shipping from our own factories. Valuing the suggestions and support of over 20,000 customers, Nakakin now accounts for Japan's largest rotary piston pump market share. Several hundreds of rotary piston pumps are sold in Germany and other European nations each year. Nakakin provides reliable quality products and services to customers in Europe, North America and world-wide.



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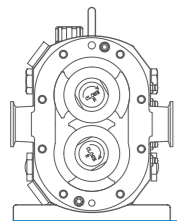
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JM/JO

JMU

SC

AMXN



Special Features

What makes Nakakin pumps special?

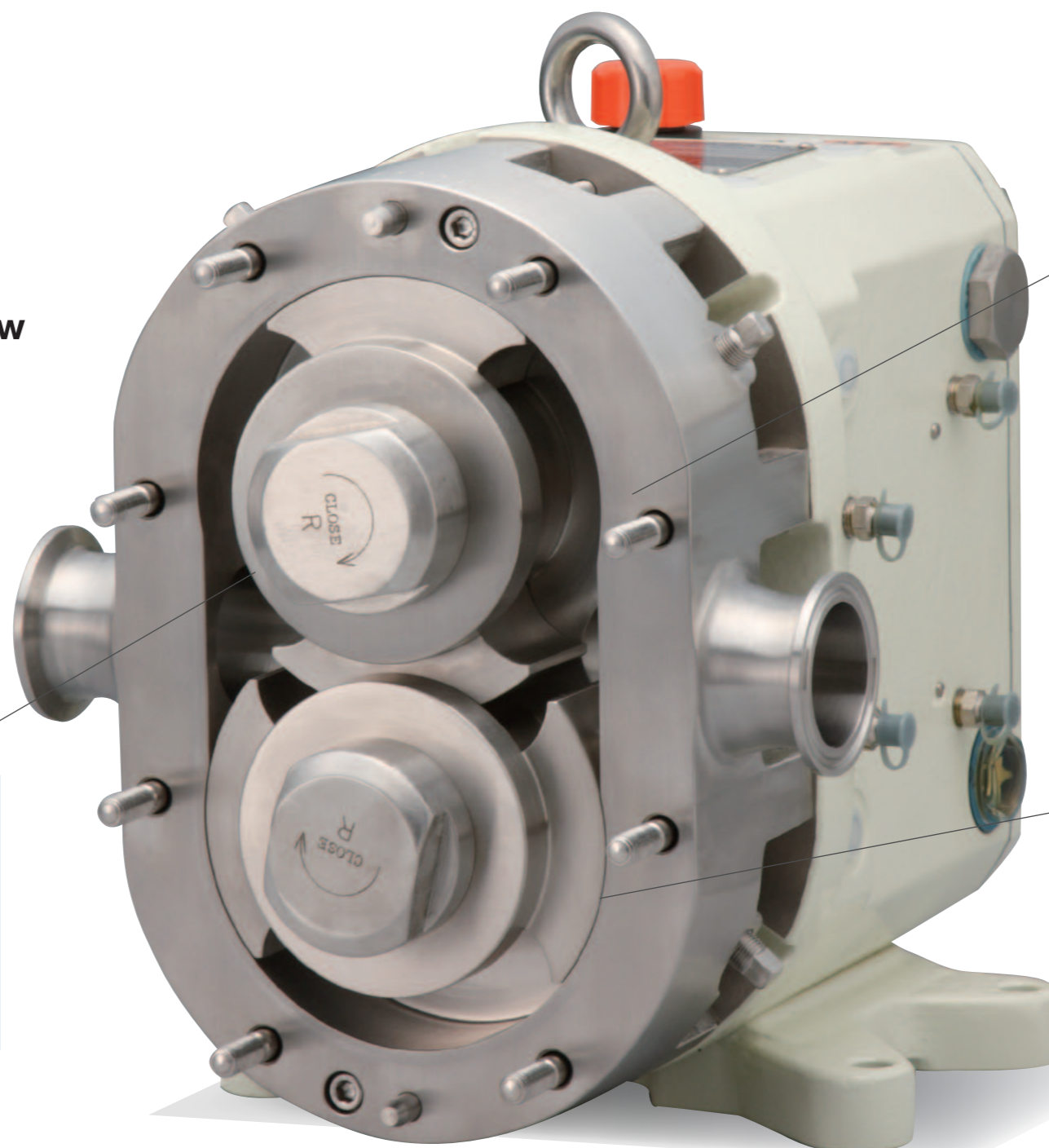


With built in safety mechanism, Nakakin pumps offer excellent discharge capacity, suction and consistent volume flow not found in non-contact structure pumps.

Nakakin covers all phases of product design, development, manufacture, and maintenance, done to produce high-quality high-performance pumps clearly incorporating customer needs. Certified by 3-A and European Hygiene Engineering and Design (EHEDG) and ensuring safety by performance-testing all pumps, Nakakin enjoys very high customer satisfaction.

Nakamura Metal No. 3

Years of carefully cultured technology have enabled Nakakin to develop a unique proprietary alloy — Nakamura Metal No.3. An original patented stainless-steel, Nakamura Metal No. 3 has less thermal expansion, achieving 70- μ clearance between the rotor and casing — the smallest in the industry. This minimum clearance contributes to high-performance discharge capacity, suction, and quantitative consistency unmatched by any competitor.



Raw Material

In our foundry, Nakakin manufactures the major pump parts coming into contact with liquids — a practice only Nakakin provides. Nakakin's production starts with excellent engineers and artisans melting and pouring metal into molds to make raw parts. Nakakin's high-performance high-quality pumps are the result of Nakakin's corporate policy "Starting at ground level."



Machining Accuracy and Assembly Precision

Nakakin inspects every single pump for accuracy. Undergoing approximately 100 inspection tests, including adjustment to the precision of one hundredth millimeter (10-micrometers), Nakakin pumps finish up in high-load operation testing to ensure safety. Extremely high machining accuracy and assembly precision helps reduce the number of parts needing adjustment, giving Nakakin pumps a superior, more durable life.



JM/JO

JMU

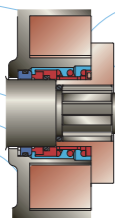
SC

AMXN

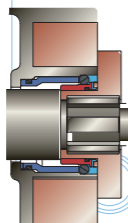
Series

JM/JO

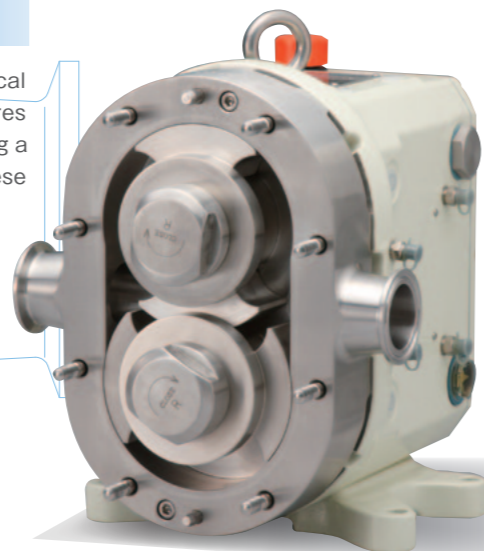
These models use inner seals, JM for mechanical sealing and JO for O-ring sealing. Simple structures making dismantling and reassembly easy and providing a long effective life with high performance make these models the most popular.



Mechanical Seal

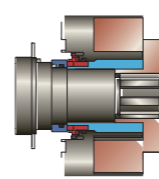


O-ring Seal

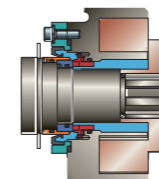


JMU

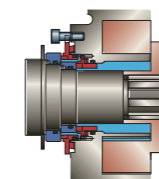
These models use outer mechanical sealing. Their simple structure makes dismantling and reassembly easy. Clients can select from single, quench, and tandem mechanisms. Designed to handle a wide variety of liquids, these models work especially well with corrosive and fiber-containing liquids.



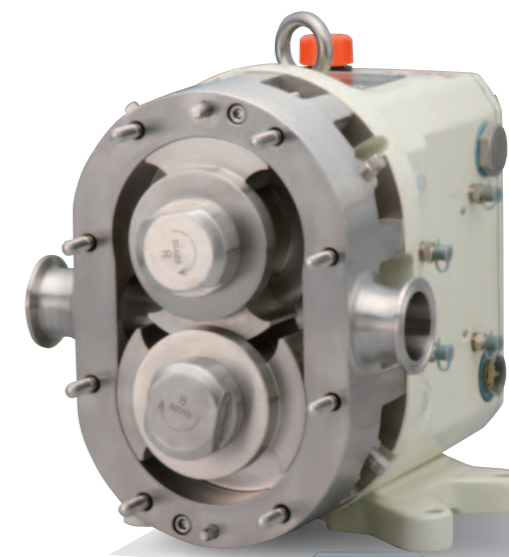
Single Mechanical Seal



Quenching Mechanical Seal



Tandem Mechanical Seal



Supported by high quality and high performance, each of Nakakin's four pump types is unique.

A casting foundry combining Japan's technologies and excellence in Nakakin produces high quality and high performance rotary piston pumps. Our wide range of approaches to sealing includes using inside and outside mechanical seals to meet individual applications. Nakakin pumps are easy to clean, easy

to dismantle, and easy to reassemble.

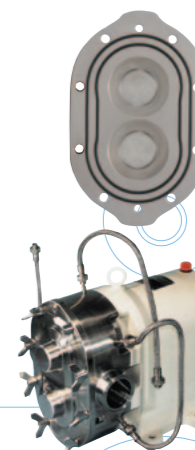
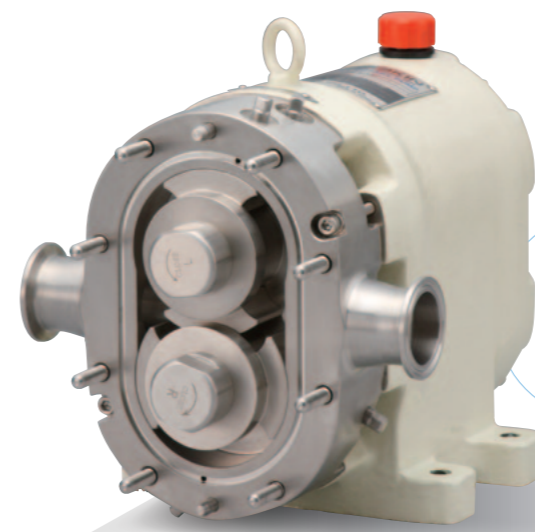
SC

The SC type is specifically designed for cleaning and washing ease. Using a flat cover and eliminating bosses allows these pumps to provide effective washing and cleaning while leaving less liquid residue. The simple structure makes dismantling and reassembly easy.



AMXN

Designed for completely aseptic liquid distribution, these pumps isolate liquids completely from the atmosphere to ensure aseptic conditions. Distributing mediums such as sterilized water and steam, these models are suited to aseptic production lines of products requiring long-term preservation such as dairy products and medications.

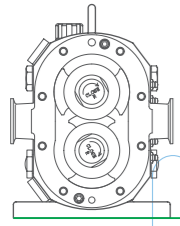


JM/JO

JMU

SC

AMXN



Industries

Japan's No.1 Rotary Piston Pump
NAKAKIN

With the motto "Suitable for all liquids", Nakakin leads the world market!!

Heeding customer comments and advice since 1950, Nakakin now has over 20,000 pump-using clients in industries including dairy products, food, beverages, and cosmetics. Due to our outstanding technology, Nakakin has secured an unrivalled market share.



Dairy

- Ice cream ● Cream ● Butter ● Margarine
- Cheese ● Evaporated milk ● Condensed milk ● Yoghurt



Foods

- Tomato paste ● Ketchup ● Sauce ● Yeast
- Bread dough ● Tofu ● Mayonnaise ● Baby food



Confectionery

- Sugar ● Honey ● Molasses ● Caramel syrup
- Bean paste ● Jam ● Marmalade ● Candy



Beverages

- Juice with pulp ● Concentrated juice ● Vegetable extracts ● Wine
- Coffee ● Green tea ● Sports drinks



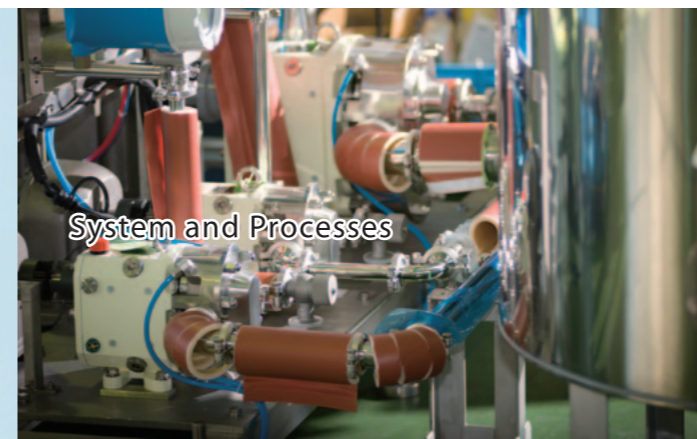
Cosmetics

- Lotion ● Shampoo ● Conditioner ● Skin cream
- Soap ● Emulsion ● Hair dye ● Toothpaste



Pharmaceuticals

- Artificial blood ● Artificial protein ● Liver oil ● Vitamin oil
- Pure water ● Essence ● Disinfectant ● Bottle



System and Processes

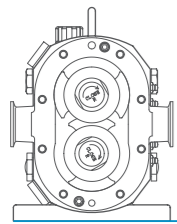
- Crystallisation ● Emulsifying ● Homogenising ● Metering
- Filling/Emptying ● Concentrating ● Drying ● Bottling



Other

- Paint ● Ink ● Petroleum ● Glue
- Emulsion ● Adhesives ● Detergents

JM/WF
JMU
SC
AMXN



Product Lineup

■ Vertical



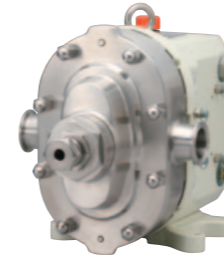
■ Rectangular Inlet



■ Jacket (Casing & Cover)



■ Vented Cover



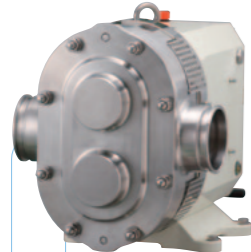
■ 3A



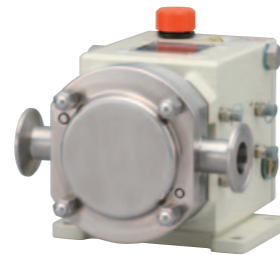
■ EHEDG



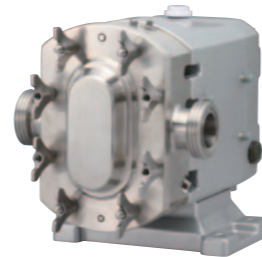
■ Big Pump
(6s 1470L/min)



■ Mini Pump



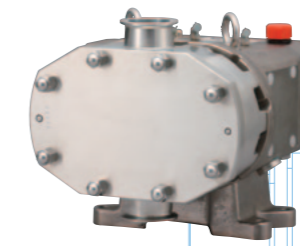
■ Customized Color



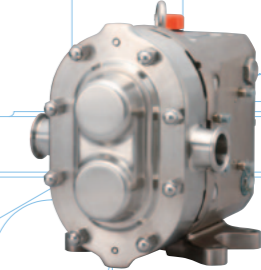
■ Buffing (Buff Finish)



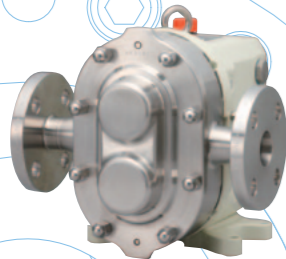
■ Nickel Coating



■ Super Nickel Coating



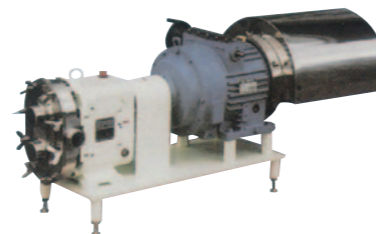
■ Pump
with Flange Connection



■ Pump Unit



■ Unit
with Variable Speed Changer



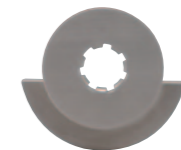
■ Unit with SUS Cover



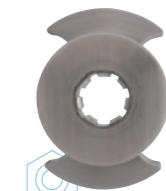
■ Unit Hopper
for High Viscosity Liquids



■ Single Blade Rotor



■ Double Blade Rotor



Only Nakakin's consistent one-step production provides all customer needs.

Continuously producing pumps best meeting customer needs, Nakakin's outstanding technology is widely recognized both in Japan and overseas. As this production system is flexible, please consult us about your particular needs and special requirements.

JM/JP

JMU

SC

AMXN

JM/JO

INSIDE MECHANICAL SEAL TYPE / O-RING SEAL TYPE



Features and Benefits

Smallest Clearance

Special alloy "Nakamura Metal No.3" can make the smallest clearance between rotors and casing.

- Convey a constant volume of liquid.
- Self-priming
- Distribution of all levels of viscosity

High Degree of Cleanability

Incredibly easy assembly /disassembly. Completely cleaned and sterilized with CIP & SIP processes. Standard: 95°C, High Temperature: 150°C

Inside Seal

Precision Pump - High rigidity is reached by shortest distance between bearing and rotor.

Mechanical Seal type

High durability and suitable for a wide variety of liquids

O-ring Seal type

Easy to dismantle and reassemble after cleaning

Maximum Discharge Pressure 1.5 MPa=15 bar (For details see Models Condification Chart,P14)

Vertical and Horizontal

Double and Single Blade Rotors

Interchangeable with RM/RO series



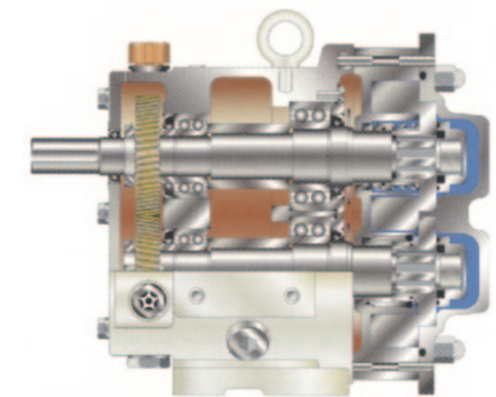
Specifications

Size	Connection	Flow Rate
4	1s	20L/min
10	1.5s	40L/min
16	1.5s	60L/min
25	1.5s	100L/min
	3s × 2s	
40	2s	135L/min
	3s × 2s	
55	2s	270L/min
	3s × 2s	
125	2.5s	410L/min
	3s	
160	4s	710L/min
200	4s	930L/min
300	6s	1470L/min

※300 is available for only JM.



Construction Diagram



Structural Drawing p13

Codification Chart p14

Performance Curve p15

Dimensional Drawing p21



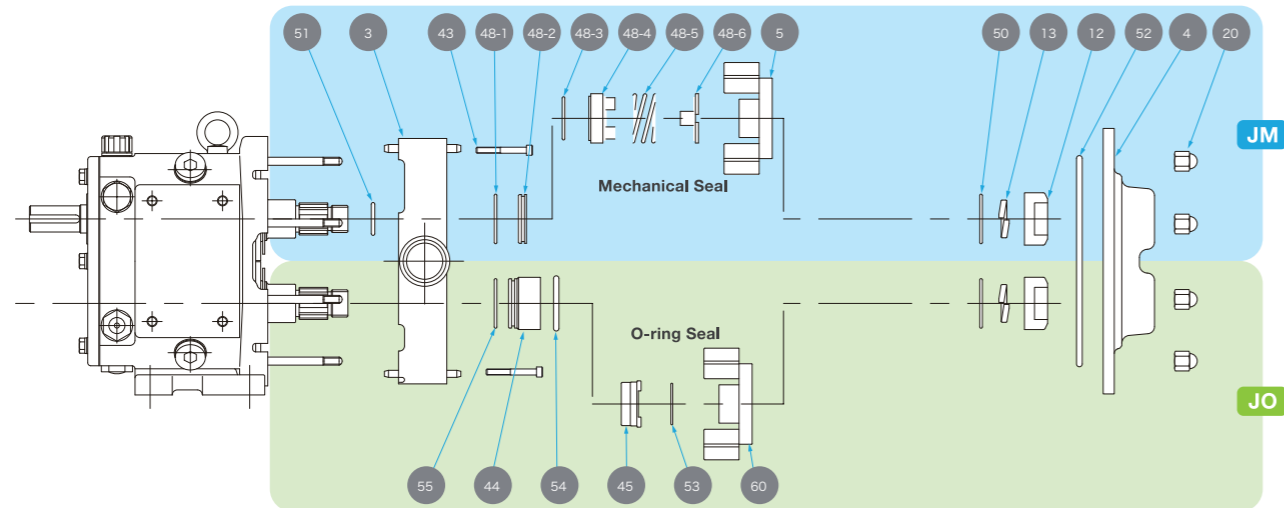
JM/JO

JMU

SC

AMXN

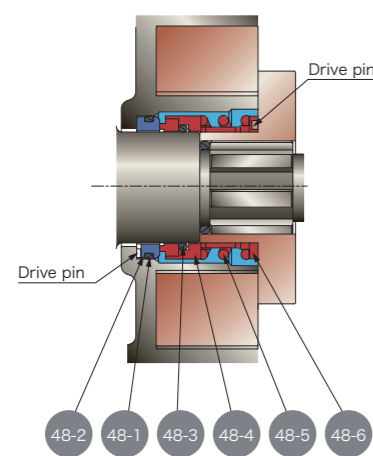
Exploded view of components in contact with liquids



No.	Parts	No.	Parts
3	Casing	20	Hexagon cap nut
4	Casing cover	43	Cap bolt
5	Rotor	50	Nut O-ring
12	Cap nut	51	Rotor O-ring
13	Spring washer	52	Cover O-ring

JM

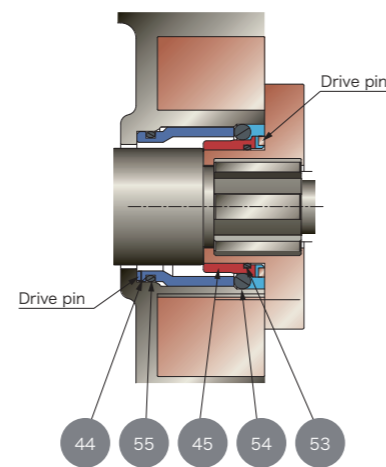
Mechanical Seal Structure



No.	Mechanical Seal
48-1	Mating ring O-ring
48-2	Mating ring
48-3	Primary ring O-ring
48-4	Primary ring
48-5	Coil spring
48-6	Spring holder

JO

O-ring Seal Structure



No.	O-ring Seal
44	O-ring seal collar
45	Sleeve
53	Sleeve O-ring
54	Casing O-ring
55	Collar O-ring
60	Rotor

As an example

B JM 25 T - VT - SM - Z

① ② ③ ④ ⑤ ⑥ ⑦

- ① Kind of Option
- ② Pump Model
- ③ Pump Size
- ④ Material of Mechanical Seal
- ⑤ Material of O-ring
- ⑥ Connection
- ⑦ Installation Option

① Kind of Option

Mark	Contents
B	Vented-Cover (Relief Valve)
C	CIP JET Pump Type
D	Single Blade Rotor
F	Flushing Type
G	Jacket (Casing / Casing Cover)
HP	High Pressure Pump (Max. 20 bar) ※JM25,55 Only
K	Rectangular Port
KZ	Rectangular Port with Slit for O-ring ※J25 ~ 55 Only
N	Smaller Clearance
OB	Air Vented Cover
S	Vacuum Type ※JM Series Only
V	Vertical Type
W	Double O-ring Seal Type ※JO Series Only
T	Titanium Pump

② Pump Model

Mark	Contents
JM	STANDARD TYPE with Inside Mechanical Seal Pump
JO	STANDARD TYPE with O-ring Seal Pump

③ Pump Size

JM/JO Series						
Size	Port	Max Speed (rpm)	Max Capacity (L/min)	Displacement (L/rev)	Max. Pressure (Standard Pump) (bar)	Max. Pressure ("HP" Pump)(bar) ※JM Only
4	1"	800	20	0.025	7	—
10	1 1/2"	800	40	0.050	15	10
16	1 1/2"	600	60	0.100	15	10
25	1 1/2"	450	100	0.220	15	10
40	2"	450	135	0.300	15	10
55	2"	450	270	0.600	15	10
125	2 1/2"	450	410	0.920	15	10
160	4"	450	710	1.580	15	10
200	4"	450	930	2.060	15	10
300	6"	450	1470	3.270	15	—

JM JO

④ Material of Mechanical Seal (JM Series Only)

Mark	Material
No Mark	Carbon&Ceramic
T	Tungsten Carbide & Tungsten Carbide
SS	Silicon Carbide & Silicon Carbide
SNT	Knife-Edge Silicon Carbide & Tungsten Carbide
T2	Tungsten Carbide & Tungsten Carbide for Liquid Sugar
... Further Materials on Request	

⑤ Material of O-ring

Mark	Material
No Mark	NBR
VT	FKM
EP	EPDM
SI	Silicon
K	Kalrez
Y	PTFE

⑥ Connection

Mark	Contents
D	DIN11851
SM	SMS
DF	DIN Flange
TC	Tri-Clamp (ISO2852)
C	Clamp
F	Flange (Japanese Standard)
Z+Connection Mark	Different Port Size
... Further Connection Type on Request	

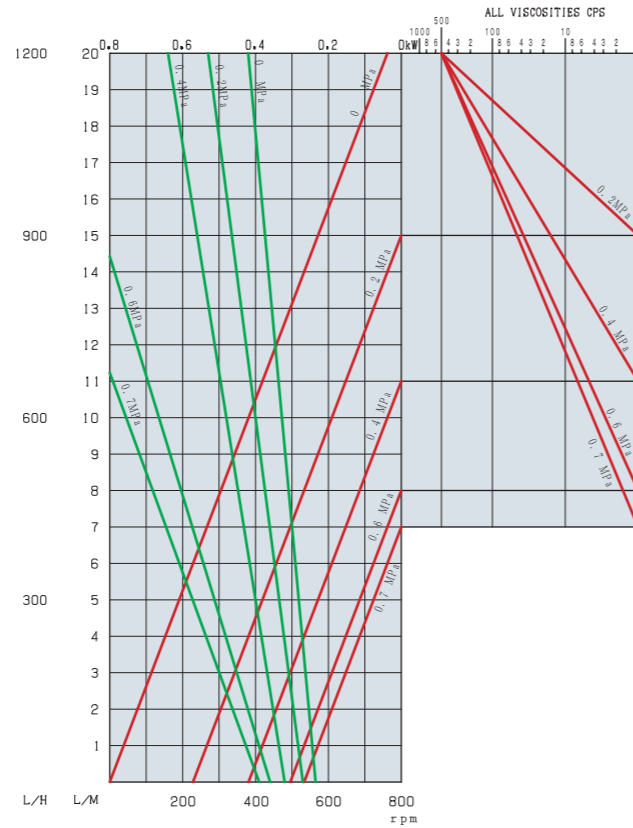
⑦ Installation Option

Mark	Contents
Z	Special Option (e.g.)
	- SUS316L/ Hastelloy (Wetted Materials)
	- SUS316/ SUS316L (Rotors)
	- Electrical Polish
	- Roughness of Surface (Ra≤0.8)
	- Left Thread Shaft
	- Umbrella Rotors (e.g. Chocolate, Paste)
- Special Material for Sleeve (Titanium Coating) ※JO Series Only	
- Nickel Coating for Housing	
... Further Options on Request	
CW	- Churning measure (e.g. Cream)
3A	- 3A Approved ※JM Series Only

JM/JO Performance Curve

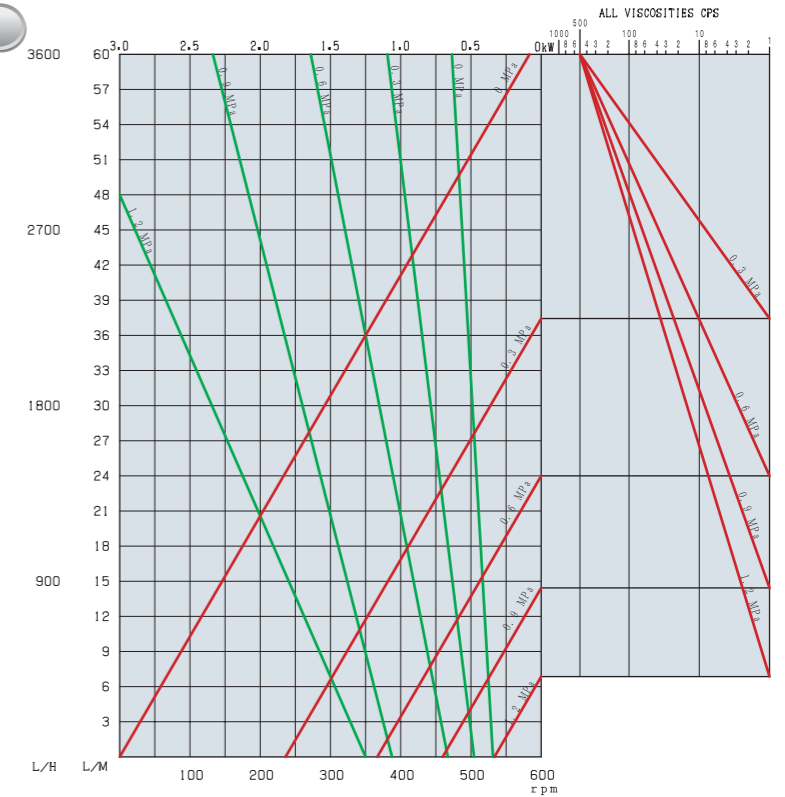
JM/JO4

PORT SIZE PRODUCT
1" Water & Newtonian fluid



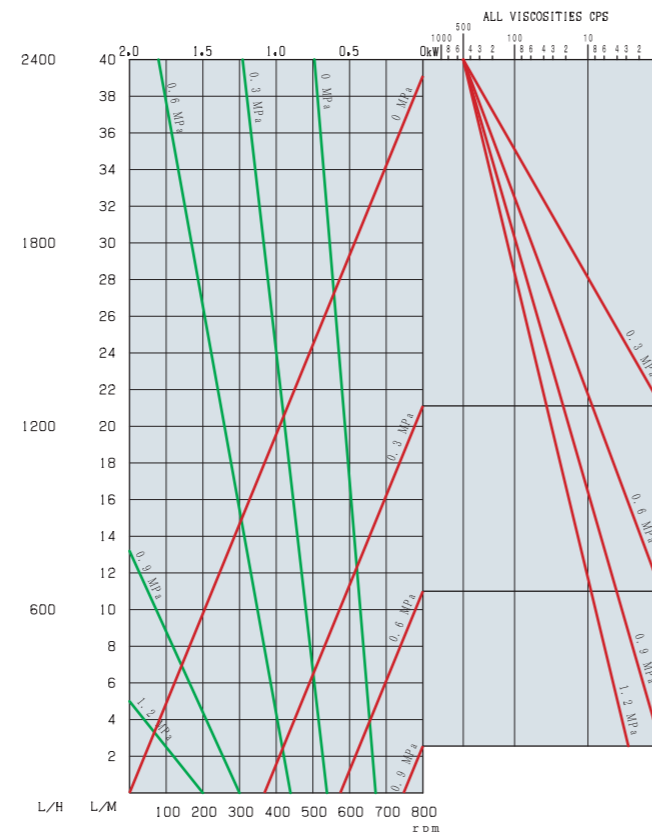
JM/JO16

PORT SIZE PRODUCT
1.5" Water & Newtonian fluid



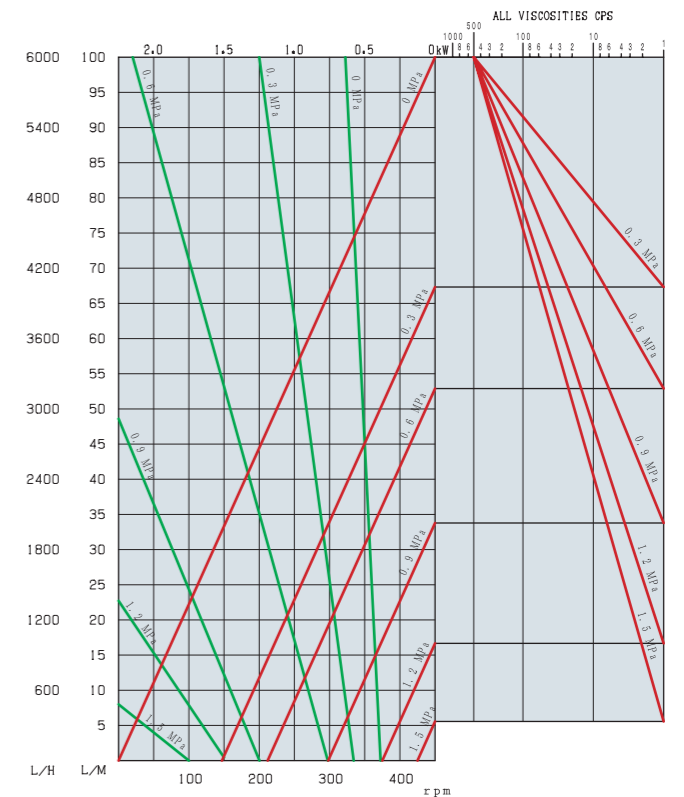
JM/JO10

PORT SIZE PRODUCT
1.5" Water & Newtonian fluid



JM/JO25

PORT SIZE PRODUCT
1.5" Water & Newtonian fluid

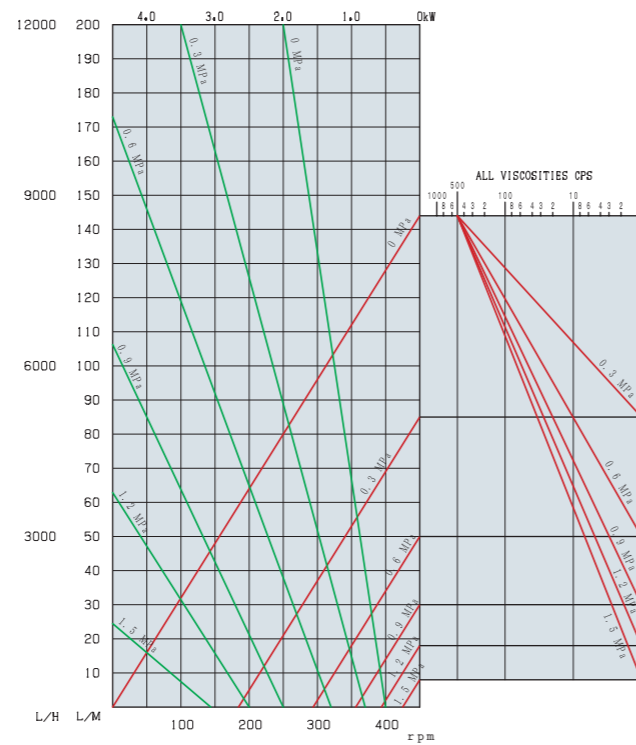


※Actual performance may vary by application or product. ※Refer to page 20 for the interpretation of the chart.

JM/JO Performance Curve

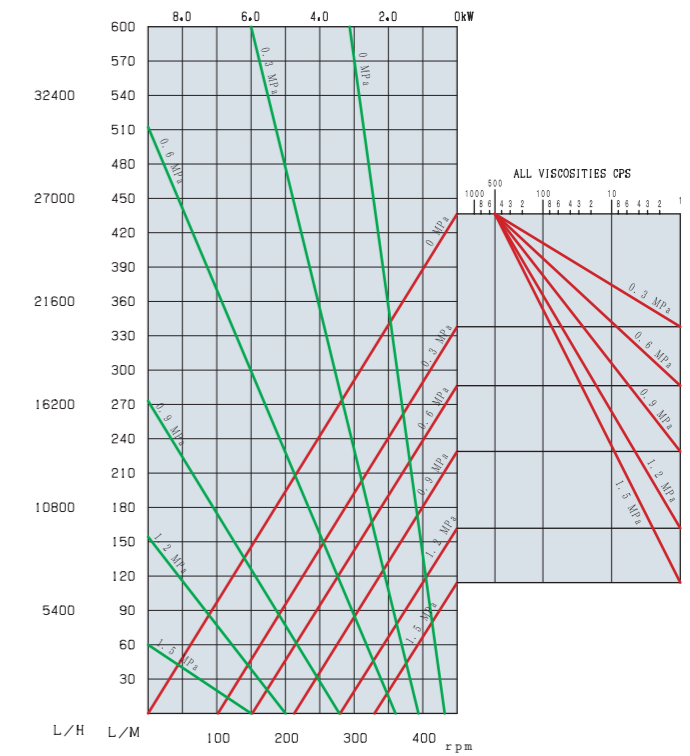
JM/JO40

PORT SIZE 2"
PRODUCT Water & Newtonian fluid



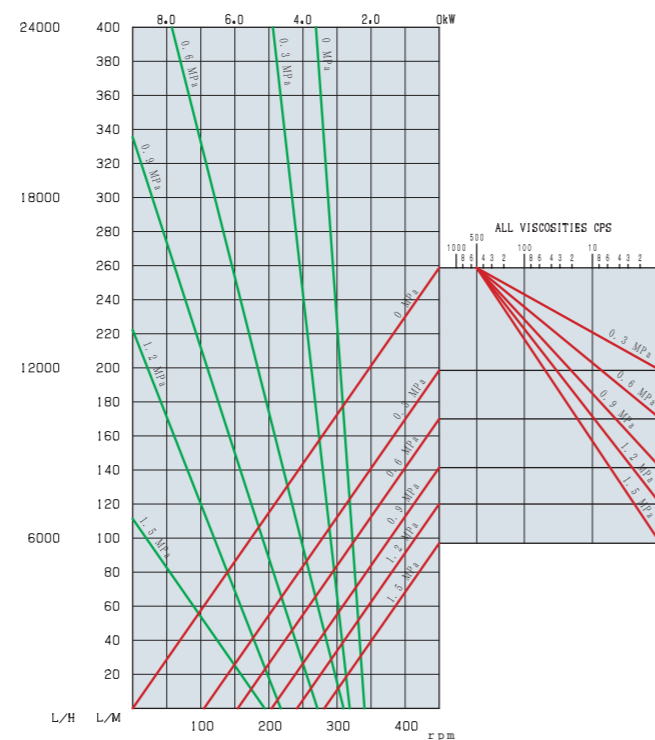
JM/JO125

PORT SIZE 2.5"
PRODUCT Water & Newtonian fluid



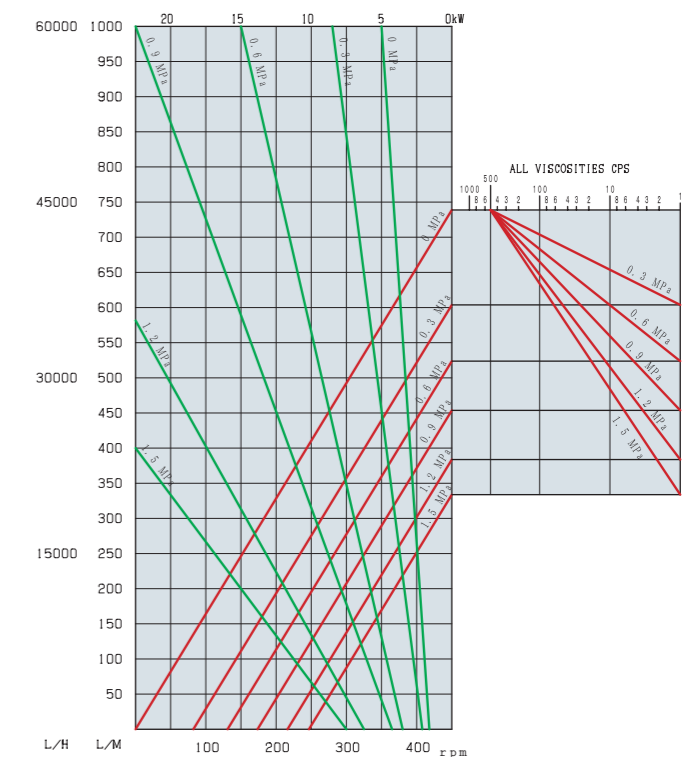
JM/JO55

PORT SIZE 2"
PRODUCT Water & Newtonian fluid



JM/JO160

PORT SIZE 4"
PRODUCT Water & Newtonian fluid

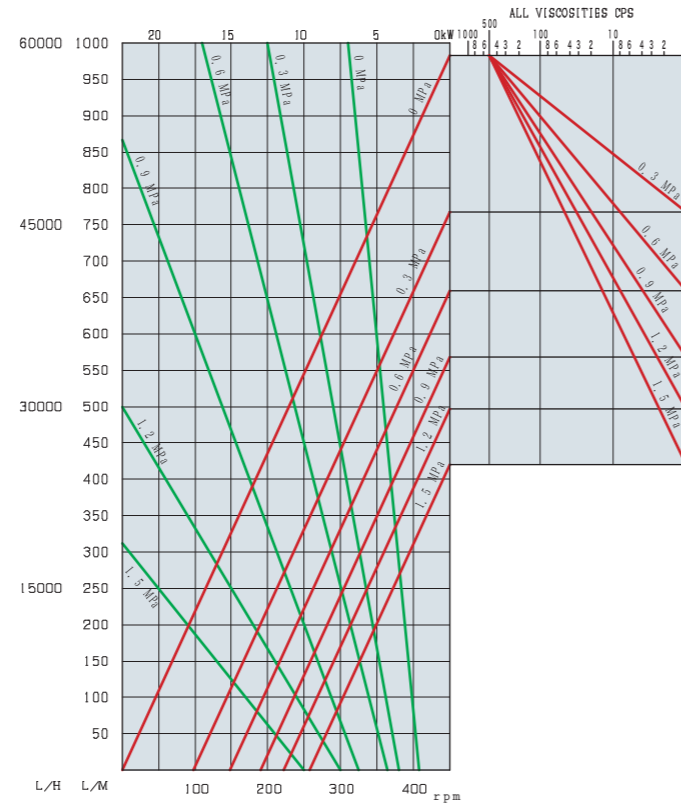


※Actual performance may vary by application or product. ※Refer to page 20 for the interpretation of the chart.

JM/JO Performance Curve

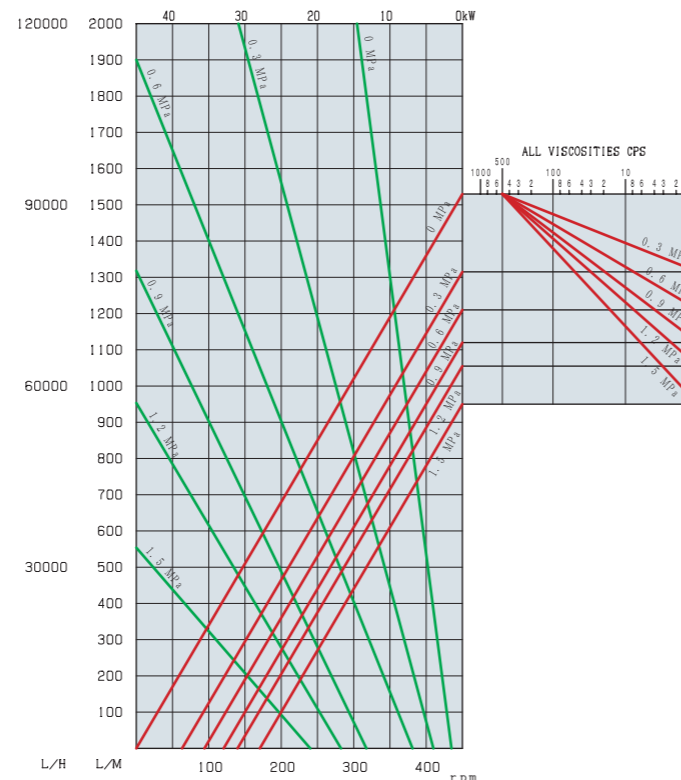
JM/JO200

PORT SIZE 4"
PRODUCT Water & Newtonian fluid



JM300

PORT SIZE 6"
PRODUCT Water & Newtonian fluid



How to Use the Performance Curve

Under the following conditions:
Flow rate: 30 L/min, discharge pressure: 0.6 MPa and viscosity: 10 CPS

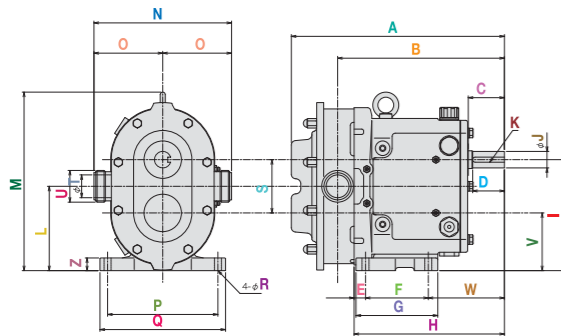


1. Come straight down (in the direction of ↓) from ① on "ALL VISCOSITIES CPS" in the upper right corner.
2. When reaching the 0.6 MPa line ②, move to direction of ←.
3. When reaching the rightmost grid of the diagram, draw line ③ in parallel with it.
4. From the intersection of 30 L/min line ④ and line ③, come straight down (in the direction of ↓) to draw line ⑤ and obtain the rotational speed of 270 rpm.
5. From the intersection of 30 L/min line ④ and the 0.6 MPa power line, go up straight in the direction of ↑ to draw line ⑥ and obtain the power (1.2 kW).

※Actual performance may vary by application or product. ※Refer to page 20 for the interpretation of the chart.

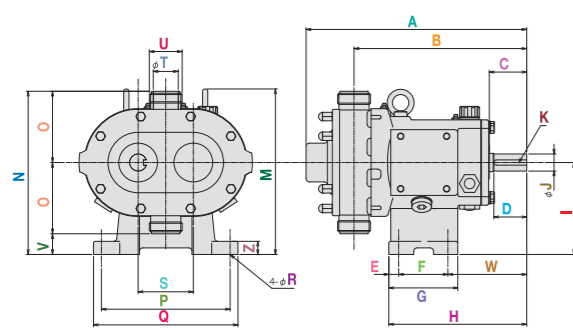
JM/JO Dimensional Drawing

JM/JO Series



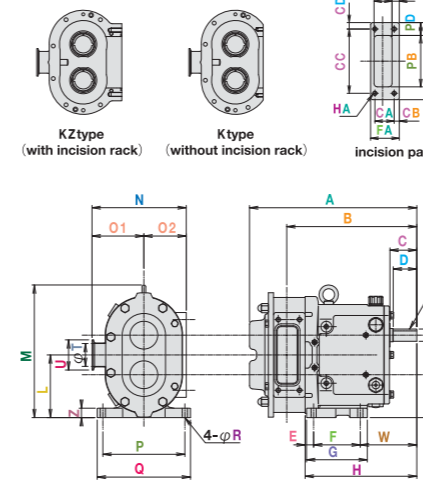
Type Mark	JO	JM(O)	JM(O)	JM(O)	JM(O)	JM(O)	JM(O)	JM(O)	JM(O)	JM
A	238	323	323	336	355	407	437	566	853	
B	195	249	246	263	276	322.5	345	440.5	695	
C	34	62	60	58	58	63	63	75	110	
D	30	50	50	50	50	54	54	70	100	
E	23	15	15	18	18	30	30	25	85	
F	75	80	80	99	99	115	115	198	265	
G	95	108	108	129	129	155	155	238	335	
H	183	218	218	237	237	295	295	388	617	
I	100	140	140	175	175	243	243	314	400	
J	18	22	22	26	26	36	36	55	70	
K										
Width	6	6	6	8	8	10	10	16	22	
Depth	3.5	3.5	3.5	4	4	5	5	6	9	
L	76	107.5	107.5	133	133	185.5	185.5	237	307.5	
M	161	237	237	282	282	380	380	506	667	
N	167	180	180	217	217	270	270	380	500	
O	83.5	90	90	108.5	108.5	135	135	190	250	
P	132	150	150	174	174	230	230	280	370	
Q	154	174	174	198	198	260	260	320	420	
R	9	11	11	11	11	14	14	18	23	
S	48	65	65	84	84	115	115	154	185	
T	19	24	30	36	47	47	60	96	150	
U	1s	1.5s	1.5s	1.5s	2s	2s	2.5s	4s	6s	
V	52	75	75	91	91	128	128	160	215	
W	85	123	123	120	120	150	150	165	267	
Z	11	18	18	20	20	23	23	23	30	
Weight	15kg	27.5kg	28kg	42kg	45kg	85.7kg	94.4kg	140kg	420kg	

VJM/VJO Series



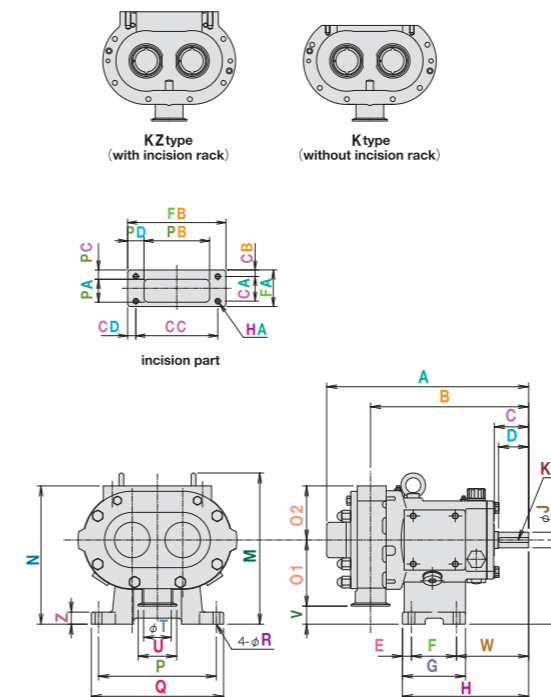
Type Mark	VJO	VJM(O)	VJM(O)	VJM(O)	VJM(O)	VJM(O)	VJM(O)	VJM(O)	VJM(O)	VJM
A	238	323	323	336	355	407	437	566	872	
B	195	249	246	263	276	322.5	345	440.5	702	
C	34	62	62	58	58	63	63	75	110	
D	30	50	50	50	50	54	54	70	100	
E	10	15	15	15	15	20	20	20	35	
F	58	60	60	75	75	125	125	153	235	
G	78	90	90	105	105	165	165	193	305	
H	153	199	199	210	210	295	295	338	502	
I	100	113	113	140	140	150	150	200	300	
J	18	22	22	26	26	36	36	55	70	
K										
Width	6	6	6	8	8	10	10	16	22	
Depth	3.5	3.5	3.5	4	4	5	5	6	9	
M	175	220	220	252	252	291	291	380	516	
N	167	203	203	248.5	248.5	285	285	390	550	
O	83.5	90	90	108.5	108.5	135	135	190	250	
P	132	170	170	196	196	280	280	360	400	
Q	154	196	196	220	220	310	310	400	470	
R	9	11	11	11	11	17	17	19	23	
S	48	65	65	84	84	115	115	154	185	
T	19	24	30	36	46	46	60	96	150	
U	1s	1.5s	1.5s	1.5s	2s	2s	2.5s	4s	6s	
V	16.5	23	23	31.5	31.5	15	15	10	50	
W	85	124	124	120	120	150	150	165	267	
Z	12	18	18	20	20	23	23	23	30	
Weight	16.0kg	28.6kg	29.2kg	44.3kg	47.2kg	89.8kg	98.2kg	160kg	450kg	

K/KZJ Series



Type Mark	K	K	KZ	KZ	KZ	K	K	K
A	323	323	336	355	407	437	566	566
B	249	246	263	276	322.5	345	440.5	440.5
C	62	60	48	58	63	63	75	75
D	50	50	50	50	54	54	70	70
E	15	15	18	18	30	30	25	25
F	80	80	99	99	115	115	198	198
G	108	108	129	129	155	155	238	238
H	218	218	237	237	295	295	388	388
I	140	140	175	175	243	243	314	314
J	22	22	26	26	36	36	55	55
K								
Width	6	6	8	8	10	10	16	16
Depth	3.5	3.5	4	4	5	5	6	6
L	107.5	107.5	133	133	185.5	185.5	237	237
M	237	237	282	282	380	380	506	506
N	140	140	200	200	275	238	325	325
O1	90	90	110	110	135	135	190	190
O2	50	50	90	90	140	103	135	135
P	150	150	174	174	230	230	280	280
Q	174	174	198	198	260	260	320	320
R	11	11	11	11	14	14	18	18
T	24	30	36	47	47	60	96	96
U	1.5s	1.5s	2s	2s	2s	3s	4s	4s
W	123	123	120	120	150	150	165	165
Z	18	18	20	20	23	23	23	23
Incision part								
CA	13	24	28	45	40	50	42	62
CB	28	16	10	12	12.5	25	48	28
CC	130	130	150	150	145	155	184	184
CD	6.5	6.5	15	15	15	9	18	18
FA	46	46	48	67	65	85	105	105
FB	143	143	180	180	175	173	220	220
PA	16	26	27	42	43	52	51.5	71.5
PB	90	90	120	120	110	115	137	137
PC	26	16	13	17	11	23	45	25
PD	26.5	26.5	30	30	32.5	29	41.5	41.5
HA	M6	M6	M10	M10	M12	M10	M12	M12
Flange part seal system	Plate packing	Plate packing	O-ring	O-ring	O-ring	Plate packing	Plate packing	Plate packing

KV/KZVJ Series



Type Mark	K	K	KZ	KZ	KZ	K	K	K
A	323	323	336	355	437	437	566	566
B	249	246	263	276	322.5	345	440.5	440.5
C	62	62	58	58	63	63	75	75
D	50	50	50	50	54	54	70	70
E	15	15	15	15	20	20	20	20
F	60	60	75	75	125	125	153	153
G	90	90	105	105	165	165	193	193
H	199	199	210	210	295	295	338	338
I	113	113	140	140	150	150	200	200
J	22	22	26	26	36	36	55	55
K								
Width	6	6	8	8	10	10	16	16
Depth	3.5	3.5	4	4	5	5	6	6
M	220	220	252	252	291	291	364	364
N	163	163	230	230	290	254	335	335
O1	90	90	110	110	135	135	190	190
O2	50	50	90	90	140	103	135	135
P	170	170	196	196	280	280	360	360
Q	196	196	220	220	310	310	400	400
R	11	11	11	11	17	17	19	19
T	24	30	36	46	46	60	96	96
U	1.5s	1.5s	2s	2s	2s	3s	4s	4s
V	23	23	30	30	15	15	10	10
W	124	124	120	120	150	150	165	165
Z	18	18	20	20	23	23	23	23
Incision part								
CA	13	24	28	45	40	50	42	62
CB	28	16	10	12	12.5	25	28	28
CC	130	130	150	150	145	155	184	184
CD	6.5	6.5	15	15	15	9	18	18
FA	46	46	48	67	65	85	105	105
FB	143	143	180	180	175	173	220	220
PA	16	26	27	42	43	52	51.5	71.5
PB	90	90	120	120	110	115	137	137
PC	26	16	13	17	11	23	45	25
PD	26.5	26.5	30	30	32.5	29	41.5	41.5
HA	M6	M6	M10	M10	M12	M10	M12	M12
Flange part seal system	Plate packing	Plate packing	O-ring	O-ring	O-ring	Plate packing	Plate packing	Plate packing

※Size and weight may be changed without prior notice.

One-step Manufacturing System

- Consult**
- Manufacturing**
- Quality Control**
- Delivery & Support**



Nakakin proposes semi custom made products that meet customers' specifications and requests. Nakakin offers not only the pump functions that best fit customers' products but also parts, materials and colors to suit customers' preferences.



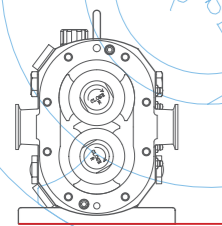
Having started as a foundry, Nakakin uses casting know-how to manage consistent manufacturing from parts production to product assembly. Nakakin is proud of its, highly skilled artisans and technicians, capable of precision adjustment and assembly. This precision can not be achieved using machinery.



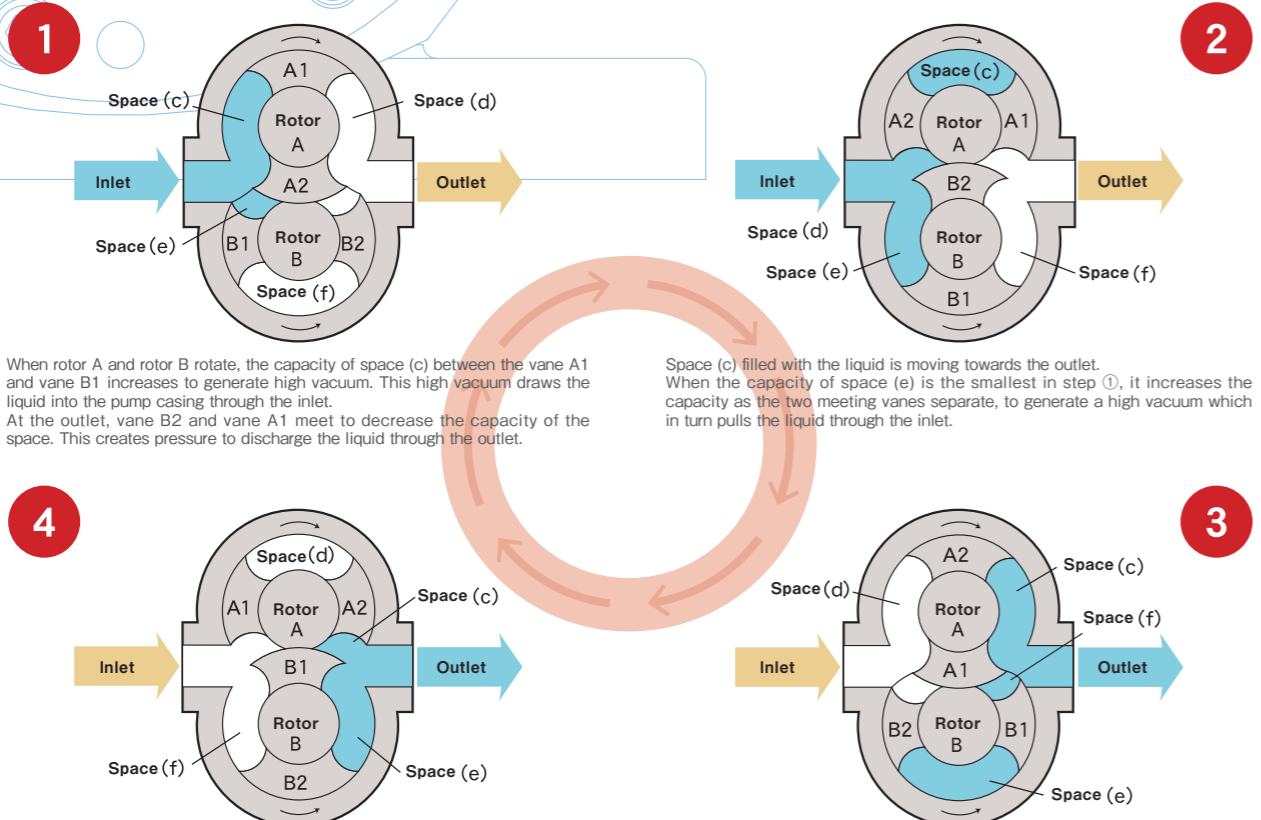
Nakakin products undergo as many as 100 inspection items and the tests are particular to the specifications of each pump. Only those pumps passing our stringent inspection and tests are delivered to customers. This ensures high performance and customer satisfaction.



Nakakin tailors its delivery and shipping to meet individual customer requirement. Nakakin offers a complete support system, supplying customer with consumable parts, maintenance and troubleshooting.



Operating Principle

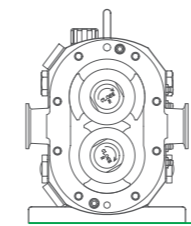


When rotor A and rotor B rotate, the capacity of space (c) between the vane A1 and vane B1 increases to generate high vacuum. This high vacuum draws the liquid into the pump casing through the inlet. At the outlet, vane B2 and vane A1 meet to decrease the capacity of the space. This creates pressure to discharge the liquid through the outlet.

Space (c) filled with the liquid is moving towards the outlet. When the capacity of space (e) is the smallest in step ①, it increases the capacity as the two meeting vanes separate, to generate a high vacuum which in turn pulls the liquid through the inlet.

With the two rotors in this position, the capacity of space (c) becomes the smallest. The pump returns to step ① to repeat the pumping cycle again.

When vane B1 and vane A2 meet, the capacity of space (c) decreases to generate pressure. This causes the liquid to be pumped out through the outlet. The capacity of space (d) increases when the two rotors rotate to separate the two vanes. This creates a vacuum to pull the liquid in.



CIP JET Function

What is CIP JET function?

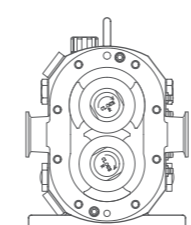
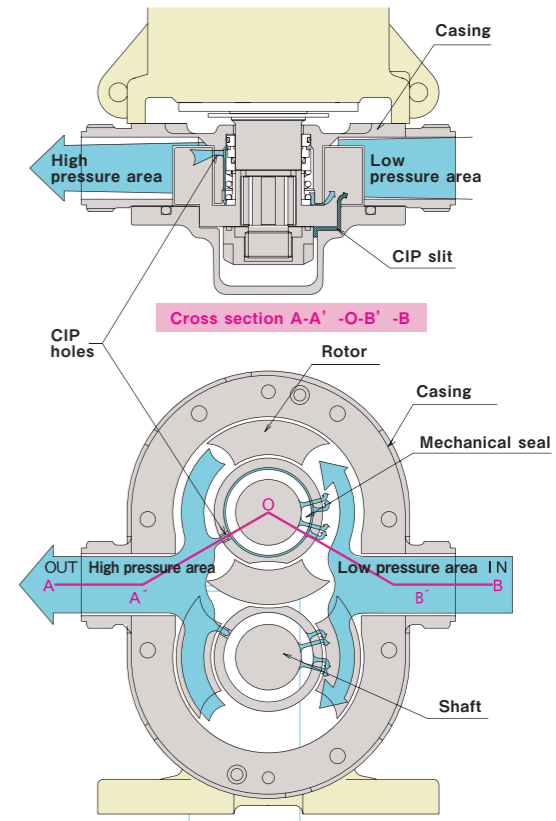
- The CIP JET function improves cleanliness inside the pump (portions in contact with liquid) during the clean-in-place (CIP) process. A sufficient amount of cleaning agent reaches inside the pump casing shafts, which are the most difficult parts to wash. This is why the CIP JET function alone cleans inside the pump without disassembling.
- Prevents liquid from changing its characteristics caused by liquid buildup. The inside profile of the pump casing shafts (portions in contact with a liquid) is designed to avoid liquid buildup. This reduces liquid degradation.

Operating Principles

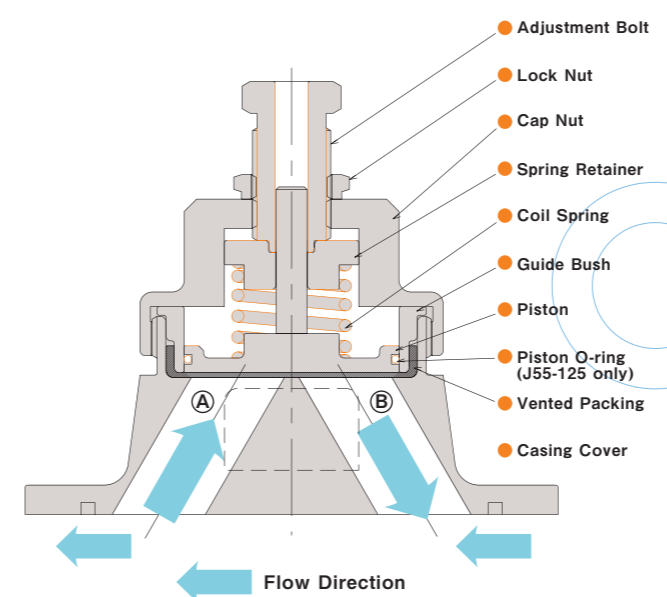
The CIP JET function uses a pressure difference that exists between the inlet and outlet of the pump. Pumps with the CIP JET function have four "CIP JET holes and slits".

Operating sequence of CIP JET flow

- The rotors of a pump equipped with the CIP JET function turn.
 - A pressure difference is generated between the inlet (low pressure area) and the outlet (high pressure area).
 - The liquid is pushed back from the high pressure area (outlet) to the low pressure area (inlet) through the CIP JET holes and slits.
 - The suction motion of the pump generates a force that extracts the liquid at the low pressure area.
- Repeating steps (1) to (4), continues high pressure liquid flow.



Vented Cover Function



Advantages

The automatic pressure regulation protects the pump from failure and mechanical problems.

Operating Principles

The "spring" and "piston" of the vented packing normally send pressure towards the portions of the pump that are in contact with the liquid. When the pressure inside the pump (or portions in contact with the liquid) becomes higher than the pressure exerted by the spring, the pressure difference pushes the vented packing up in the opposite direction from the portions in contact with the liquid. This causes the liquid to reverse its flow through bypasses A and B, suppressing the pressure increase inside the pump (portions in contact with the liquid).

JM/JC
JM/JC
SC
AMXN



Company Profile

Overview

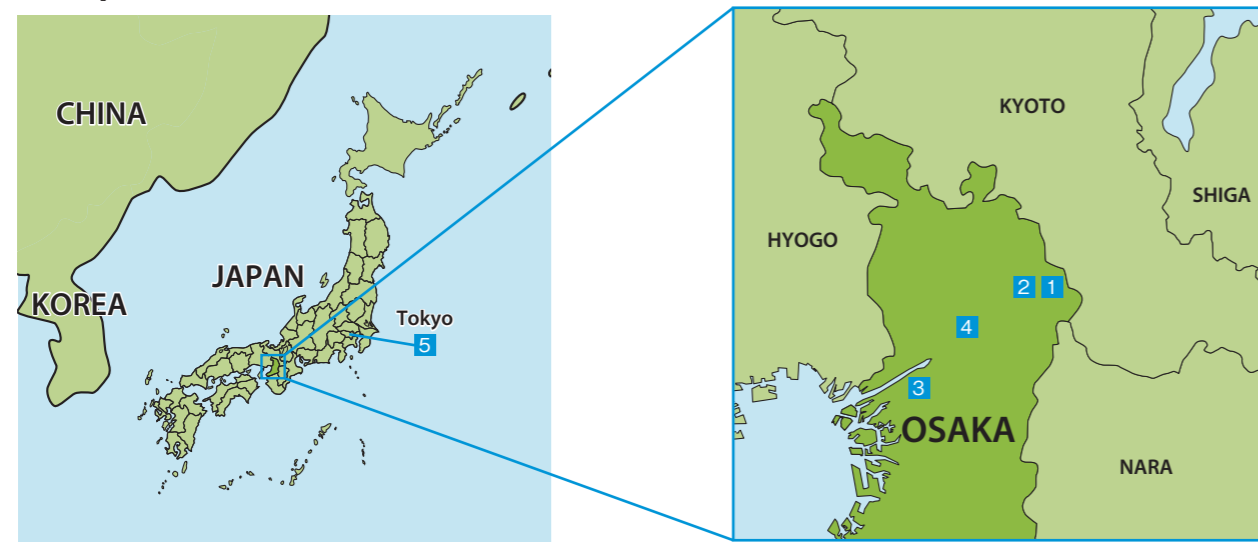
Company Name NAKAKIN CO., LTD
 President Takuji Ehomoto
 Established March 1964 (Founded in 1950)

Capital 84 million yen
 Employees 450

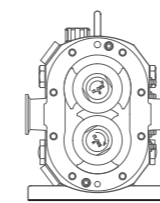
History

- Sept.1950 Nakamura Metals & Casting Co. was founded by Shigezo Nakamura, the father of Mitsuo Nakamura, the chairman. There were then two departments: pattern and metal mold making, and aluminum and copper alloy casting.
- Nov.1970 The Metal Mold Division was moved to its newly built premises, Torikai Plant (Metal Mold Division)at Higashihitotsuya in Settsu City, Osaka Prefecture.
- Dec.1972 The business of Nakamura Metal Co., Ltd. was merged with the Yodogawa plant (Valve Division) of the Nakamura Metallic Industry Co., Ltd. and renamed.
- April1973 Rotary piston pumps were manufactured and sold at the Hirakata Plant for the first time under our own brand name. The Industrial Precision Machinery Division (Pump Division) was established.
- May1982 The Tokyo pump Office (Industrial Precision Machinery Division) was opened.
- Sept.1986 Nakamura Seiko was established in Nangoku City, Kochi Prefecture.
- May1989 The Head Office Building was constructed in Yodogawa-ku, Osaka City.
- April1992 The new Kasuga Plant was constructed in Kasuga-kitamachi, Hirakata City.
- April1993 The company name was revised to Nakakin Co., Ltd.
- May1995 Our overseas affiliated company, P.T.Nakakin Indonesia was established in Jakarta, Republic of Indonesia, as the first overseas production base. Its capital was 100% provided by Nakakin Co., Ltd.
- Nov.2002 Hirakata Plant and Kasuga Plant received ISO9001 certification.
- March2005 Head Office and Hirakata Plant and Kasuga Plant received ISO14001 certification.
- Jan.2012 The Europe office was opened in Germany.

Map



1 Hirakata Plant 2 Kasuga Plant 3 Head Office 4 Torikai Plant 5 Tokyo Office 6 Europe Office



Technical Information

Performance

- Flow rate up to 90,000 l/h
- Screw-type mounting foot for horizontal and vertical installation
- Flow Direction: Left↔Right : Up↔Down

Product Viscosity

- Up to 300,000 mPas

Colors

- Munsell 7.5 GY 9/2
- RAL-lacquer coatings on request

Materials

- Pump housing and cover: stainless steel (1.4571/AISI 316)
- Double blade rotors : Patented alloy

Design

- Easy stock-keeping and spares inventory due to standardized sizes
- Operation pressure up to 15 bar
- Suction head up to 9 mWS

Connections

- Male parts (DN), DIN 11851 (Standard)
- SMS
- Aseptic flanges DIN 11864-2
- Aseptic Screwed Connection DIN 11864-1
- Tri-clamp, ISO 2852
- Further connection types on request

Mechanical Shaft Seal

- Carbon/Ceramics
- Tungsten Carbide
- Silicon Carbide
- Further materials on request

Sealing Material of O-Rings

- Viton
- EPDM
- Further materials on request

Temperature Resistance

- Up to 95°C (Standard Model)
- Optional up to 150°C (High Temperature Model)

JM • JO • JMU Series

Sizes	4	10	16	25	40	55	125	160	200	300
Max. rpm[min^{-1}]	800	800	600	450	450	450	450	450	450	450
Max. Pressure[bar]	7	15	15	15	15	15	15	15	15	15
HP*1 Max. Pressure[bar]	-	15	15	20	15	20	15	15	15	15
Size of Connection [Inch/DN]	1/25	1.5/40	1.5/40	1.5/40	2/50	2/50	2.5/65	4/100	4/100	6/150
Max Feeding Capacity*2 [liter/minute]	20	40	60	100	135	270	410	710	930	1470
Max Feeding Capacity*2 [liter/hour]	1200	2400	3600	6000	8100	16200	24600	42600	55800	88200

※1: HP = High Pressure Version ※2:Based on water without counter pressure,i.e. approx. 1 mPas/0 bar

JM JO JMU

SC Series

Sizes	15	30	60	130
Max. rpm[min^{-1}]	700	450	450	450
Max. Pressure[bar]	10	10	10	10
Size of Connection [Inch/DN]	1.5/40	2/50	2/50	3/6.5
Max Feeding Capacity*2 [liter/minute]	70	125	240	480
Max Feeding Capacity*2 [liter/hour]	4200	7500	14400	28800

※2:Based on water without counter pressure,i.e. approx. 1 mPas/0 bar

AMXN Series

Sizes	2400	3400	7000	10000	14000	24000
Max. rpm[min^{-1}]	800	600	450	450	450	450
Max. Pressure[bar]	7	7	7	7	7	7
Size of Connection [Inch/DN]	1.5/40	1.5/40	2/50	2/50	2/50	3/65
Max Feeding Capacity*2 [liter/minute]	41	57	110	176	270	430
Max Feeding Capacity*2 [liter/hour]	2460	3420	6600	10560	16200	25800

※2:Based on water without counter pressure,i.e. approx. 1 mPas/0 bar

JM/JO

JMU

SC

AMXN