

KUBOTA GRAVIMETRIC FEEDER BROCHURE

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Next Feeding Stage

KUBOTA Corporation
Precision Equipment Business Unit

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<https://feeder.kubota.com/>

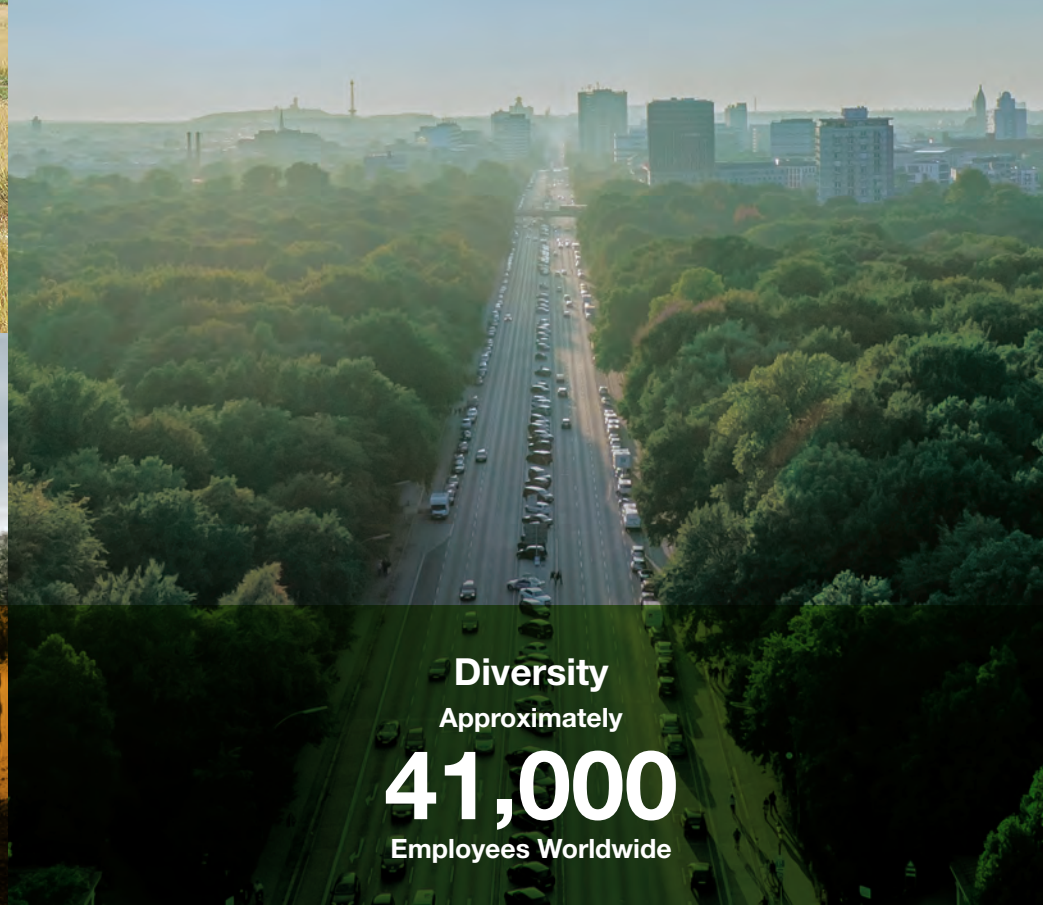


Our Heritage
Established in
1890
in Japan

Global Expansion
More than
120
Countries



Net Sales
Approximately
1.9
Trillion JPY



Diversity
Approximately
41,000
Employees Worldwide



Overseas Sales
Approximately
68%
Sales

Since its foundation in 1890, Kubota has always been working to solve global issues with this philosophy in our mind. "What is really needed?" "What can we do?"

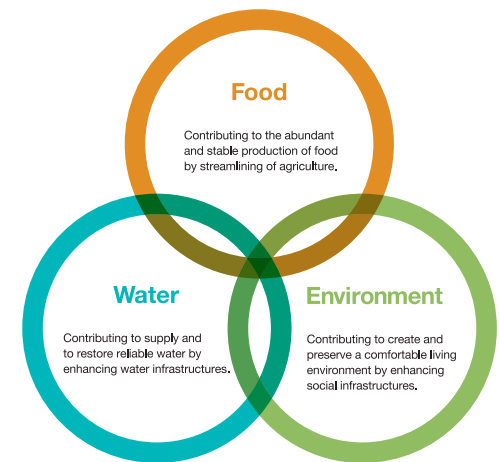
While questioning to ourselves, we have been contributing to the development of society with our superior technologies and products in various regions of the world.

Still, there are many issues on earth.

In order to create the commonplace of the future, we will continue to challenge the issues in front of us, while looking ahead to the next era.

For Earth, For Life

Kubota



"Food, Water, and Environment" are the complex themes and very important problems that are closely linked with each other. We promise to solve this problem with the reliable technologies and products we have accumulated so far, and support the lives of people all over the world. We will continue to innovate around the world to realize the future that Kubota has been dreaming of.

Kubota Gravimetric Feeder keeps changing the common sense

Kubota's weighing technology is active in all industries of the world.

To weigh precisely is an important technology that is always required in a variety of scenes such as manufacturing, logistics, sales, and services, and it has continued to evolve without stopping since we began manufacturing "scales" in 1924.

The gravimetric feeder manufactured by Kubota, which has been pursued for accurate and fair weighing for a long time, has a high reputation for supplying raw materials accurately, and supports social bases around the world with stable quality.

Also, we will be changing our common sense by working on the technological innovations for the next generation that are based on the latest technologies.



Reliable results in Japan Share

No.1

High Accuracy

High Quality

High Stability

*Actual production statistics 2017 searched by JMIF

Over 15,000 orders from around the world

Kubota developed the first gravimetric feeder in Japan in 1981. Design, manufacture, sales and service are supported by more than 40 years of history, and our feeders are active around the world currently.

Digital Load Cell Annual Production Volume 30,000 units

The core component of the gravimetric feeder as a weighing equipment, is the "digital load cell (weighing sensor)." Kubota succeeded in developing a digital load cell for the first time in Japan, and has shown its presence in the world as a leading company in the weighing industry. From the manufacture of load cells as the most important parts, to the assembly of feeders, we are committed to the integrated production at our own factory in Japan, and we deliver high quality products to the world.



Responding appropriately to all needs

Kubota's gravimetric feeders contribute not only to plastic production but also to quality assurance in various industries such as food, medicine and lithium ion batteries. We offer a lineup of products that can handle a wide range of raw materials and flow rates such as NX, that can be adapted to a wide range of raw materials and flow rates from additives with small flow rates to large flow materials by one model. It is an easy-to-use feeder with sophisticated designed small parts, so that maintenance and material replacement can be done easily and quickly by staffs.

NX(-S/-T)

Versatile Loss-in-Weight Screw Feeder

Various material application with wide flow rate

Wide material applications

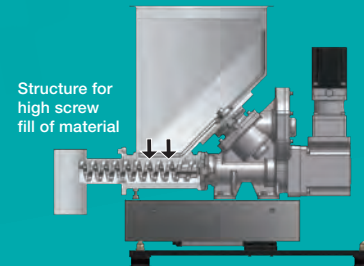
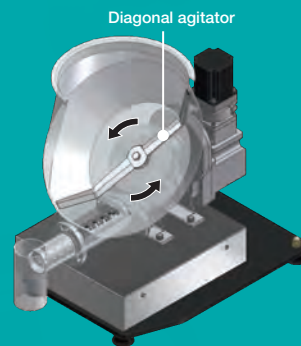
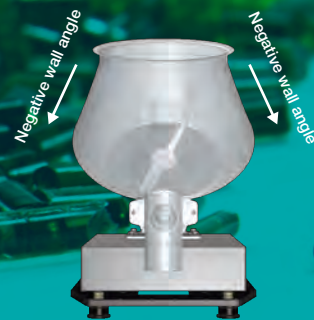
The newly developed negative wall angle hopper and diagonal agitator prevent bridging and rat holes in the hopper, so it is possible to feed the raw materials such as not only powder but also a wide range of raw materials such as pellets, fiber, and crushed sheets without problems.

High feeding accuracy

The agitator rotating along the bottom of the hopper wall decreases unnecessary movement of materials and passes directly above the screw while pushing the raw material. These features achieve high feeding accuracy because the material is filled stably into the screw part.

Easy maintenance design

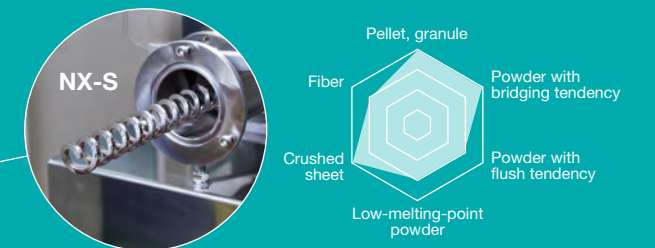
Because of its simple structure and small number of components adopting the bolt fall prevention structure, disassembly and cleaning maintenance is easy. Also, since a grease lubricant that can be used for a long time is adopted for the gearbox, the time for replacement and replenishment is reduced.



Application

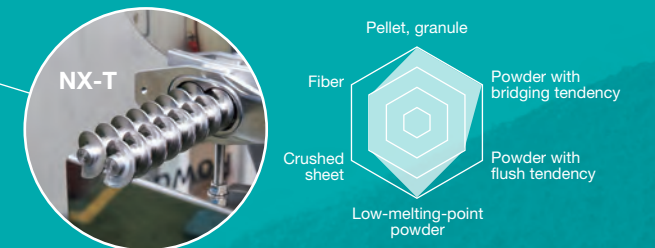
- Pellet
- Resin Powder
- Talc
- Titanium dioxide
- Glass fiber
- Crushed sheet
- Carbon black
- Calcium carbonate
- Filler
- Pigment etc.

Single Screw Type



Twin Screw Type

Available higher accuracy feeding compared with single screw type



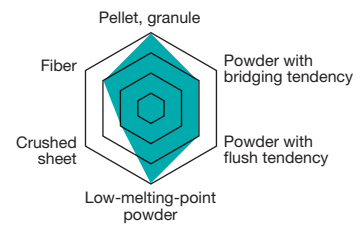
CE-W-0

Micro Loss-in-Weight Screw Feeder

Additive feed with minimal flow rate

Application

- Additive
- Dye
- Pigment
- Filler



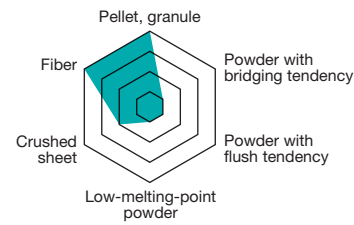
CE-V

Vibratory Loss-in-Weight Feeder

Fiber feeding with preventing fibrillation and keeping ingredient property

Application

- Carbon fiber
- Glass fiber (Various fragil or fibrous material)



CE-L

Liquid Additive Loss-in-Weight Feeder

Liquid additive dosing to an extruder

Application

- Demineralized water
- Flame retardant
- Lubricant
- Oxidation inhibitor
- Anti-static agent (Various liquid)



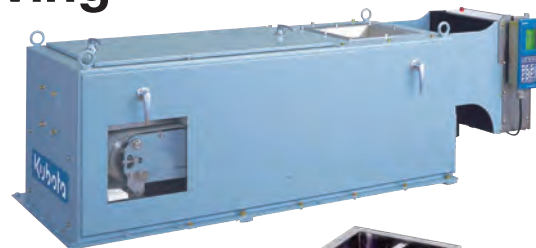
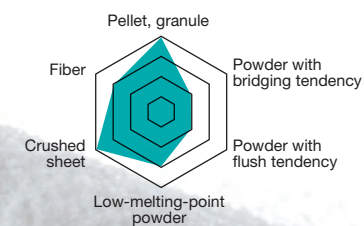
B-WF

Weigh Belt Feeder

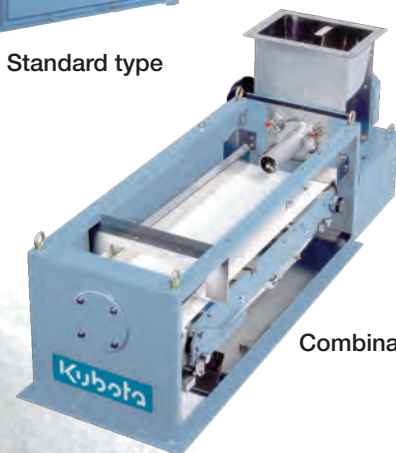
Large flow capacity with space saving

Application

- Pellet
- Powder
- Fiber
- Crushed sheet



Standard type



Combination type

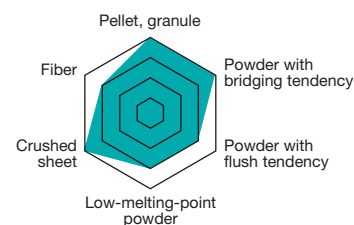
L-CWF

Large Flow Rate Loss-in-Weight Screw Feeder

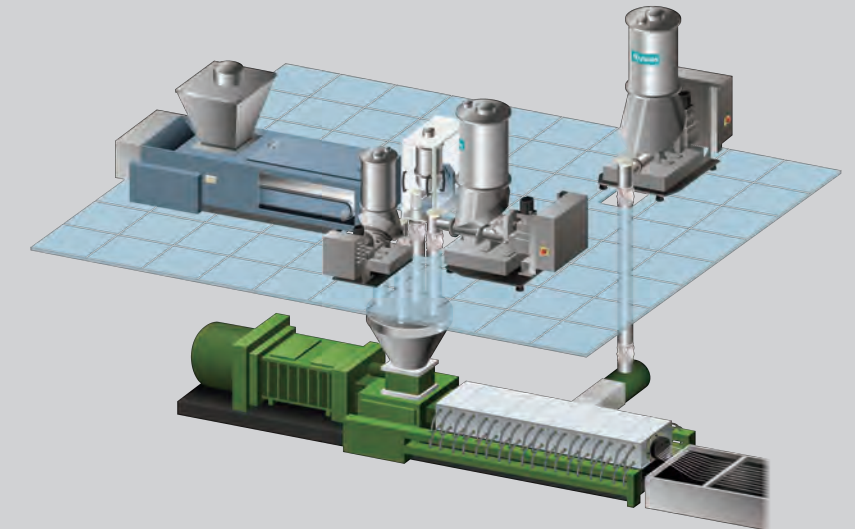
Large flow capacity with loss-in-weight control

Application

- Pellet
- Powder
- Crushed sheet etc.



System Layout



Newly developed engineering plastic materials and their compounding processes mean that the kinds of materials fed into an extruder are increasing. Direct feeding of several kinds of material has become common and has generally been accepted recently.

Operation Terminal

WF-OH

Hand Held / Panel Mount Operation Terminal



Used for the feeder running and the external communication settings, and for checking the feeder running situation.

WF-DT

Centralized Control System



Controls multiple feeders in one terminal. Data can contribute to resolving problems by identifying conditions of the system over the long term.

Testing with your raw material, before your installation

The required quality and performance of gravimetric feeders varies greatly depending on the raw materials handled by the customer. At the Feeder Technical Center (FTC), you can supply raw materials that are handled practically and execute the performance tests with them. Our well-trained staff will prepare a detailed report and propose the best feeder with our findings from over 10,000 kinds of material data (over 45,000 total test data). Of course, we will support quickly from start-up operation to local adjustment and troubleshooting after installation.

Report List Submission

- Detailed properties of raw materials
- Proposal of the best combination by the matching of the feeder main body and parts
(Detailed information of the defect is also provided if a problematic combination is found)
- Assumable feeding accuracy at minimum flow rate, normal flow rate and maximum flow rate
- Findings and advice on use
- All measured results of sampling
- PI setting value of feeder and observed torque value
- Photograph of hopper and screw after feeding
- The ambient environment at the time of test etc.

FEEDER TECHNICAL CENTER

India

"Please confirm the situation of feeder operation in advance"

Have you ever felt anxiety before the installation, whether the raw materials can really be fed with accurate flow rates and accuracy? Kubota has a way to get rid of such anxiety and instill confidence. Nothing is more reliable than checking detailed information with actual feeders and actual raw materials, which cannot be obtained by just checking documents.

It is minimum things to check out whether the flow value displayed on the feeder is really matches the actual flow value. Besides actual flow value, there are many things can be known only after the actual operation, for example, the remaining material amount in the hopper, the adhesion of raw materials to the agitator and screw, and the effects of long runs etc.

Depending on the test, we can advise on the frequency of cleaning and maintenance. We have a firm confidence in the quality of the feeder itself, and our wealth of installation results and experience allows us to do so. Check with us in the technical center the various events that are expected in your production line.

Japan

"Thoroughly understanding the raw materials is a key to selecting the feeder"

The feeder is configured not only by its model and body size, but also by the combination of the parts selection based on the agitator, screw, and discharge tube. "Properties of the raw material itself" is an important point to find a combination that satisfies the desired flow rate and accuracy.

For example, regarding bridging and flushing. These can be written in one word, but these are complex things that can never be expressed in a word, as their levels vary or occur only under certain conditions. FTC is not just a place to check representative guidelines of raw materials.

We are responsible for linking analysis results of detailed data of raw materials and our own knowledge and know-how accumulated over about 40 years. The result is the selected feeder from an abundance of combinations.

Japan Center Director



Korea

"Providing knowledge acquisition and maintenance education"

It is also our role to provide educational opportunities such as how to properly handle feeders, how to execute maintenance and check, and knowledge of the principles of feeders. No matter how good the feeder is installed, if the usage or maintenance is poor, the quality of the final product you produce will not be good, and it may cause frequent troubles. As well as testing in the technical center, it is possible for us to bring an actual feeder to your location, so please feel free to contact us.

Other Countries

"A service of overwhelming quality by expert technicians"

All the members who support the areas where there is no technical center, are also technicians with specialized training in Japan. We will support you with confidence in case of installation, trial operation and adjustment after installation, and if any troubles occur.

China

"A detailed test report, with confidence to satisfy you anytime"

Although some of the feeder manufacturers do not test on the actual feeder, Kubota surely does and submits testing results with perfect content. If you check the contents of the testing report, you will be able to understand the reason why Kubota boasts the top share in Japan.

In addition, depending on the raw material, it is possible to provide sample data or the data that is equivalent to the actual feeding test, based on our accumulated know-how and actual results. In some cases, just a testing of the properties of raw materials will make for a satisfying report. Also, visiting tours and explanations without the testing are of course always welcome.



Additive Masterbatch Manufacture

"Our workers are pleased with the feeder that is easy to use even for a small quantity of a variety of products"

We are manufacturing additives and functional master batches for general purpose plastics and engineering plastics. Because the production is mostly many varieties in small lots, it takes a lot of effort to change the raw material and to change the setup. In some cases the cleaning was repeated every other day immediately after production, and in some cases half of the month was used to change the setup.

Since Kubota's feeders have a lightweight and easy maintenance structure that are easy-to-disassemble, the effort of changing setup was greatly reduced. The workers at the field also have a very good impression, saying, "Easy to change the setup" and "Improving efficiency by shortening the working time". We have adopted Kubota feeders of various models, a weigh-belt feeder for the main material that needs to be fed at a large flow rate, and a screw feeder for other sub-materials and additives.

Engineering Plastic Manufacturer

"My problem until now was the product quality that had not been stable, but it has become stable after I changed to Kubota"

I really felt that a high quality feeder is required to make a high quality product. My company is producing engineering plastics that are highly dependent on quality by the raw material mixing ratio changing slightly, and uses raw materials that easily contain air and are easy to flush.

When using other companies' feeders in the past, it was difficult to control the flow rate and the accuracy was not good, so it was a big problem that defective products were frequently generated in the final product.

However, no such trouble has occurred since Kubota's feeder had been installed. I believe it is proof that Kubota's feeder feeds materials accurately.

I hear that Kubota is a very famous weighing equipments manufacturer in Japan. As well as being a feeder that can handle a material variety of properties, it is very reliable as a weighing equipment. Actually there are materials that are difficult to feed in addition to this material, so I would like to install Kubota again, and to improve the quality of the product.

USER VOICE



Plastic Compounding Company



"Available to confirm the actual feeder and its accuracy by the test in FTC, was the key in deciding to move forward with the installation"

We installed a Kubota feeder for the first time. As it is a brand that I have never used before, honestly at first I was concerned about its accuracy and usability, so I had considered it with a negative image. And while half in doubt, I asked for a test at the feeder technical center.

There, I could see the feeder itself and its feeding, and I could get the explanation of the testing results deeply. Through that, I got the conviction that this feeder is very convenient and accurate and has no problems, so I decided to install it immediately. I was so impressed by the high level of technical skills of the staff and the polite response.

I have heard that they will also be in charge of the after-sales service, so I can ask them for reliable maintenance. Actually I am planning to expand our factory in the future, and planning to feed new raw materials. In that case, I would like to decide the installation after confirming the actual performing testing.

Our products are used in various fields



Quality improvement | Yield improvement

Productivity improvement | Human cost ...

Do you have any current problems?

Visual and manual screening and removal of foreign objects consume time and human cost. This does not increase productivity, and we cannot expect a certain quality. Kubota's screening system sorts out and removes small black spots, burns, black particles, etc. of plastic pellets according to the color difference. The high-resolution line sensor camera is equipped to provide high quality and productivity by improving the detection performance, including the applicability of transparent plastic pellets.

"Plastic Pellet Screening System" is a solution for the problem of balance between product quality and manufacturing cost

Benefit

Quality improvement

- Human eye screening causes screening errors. → Screening criteria becomes clear.
- Different screening standard by each inspection operator. → Release of defectives can be prevented by screening before shipment.
- Defective products are released to the market. → Defective products can be found in the production process before shipment.

Reducing the workload of operators

- It takes a lot of time for manual labor inspection. → Screening in short time. (Maximum 1 t/hour capacity)
- Physical load like eye strain are caused by long and fine manual work. → Automation screening.

Cost reduction

- Manual inspection for all products (or sampled) is costly. → Reducing the labor cost of inspection by automated inspection.



KP-50KT
Super
PLATON II

Materials and contaminants which can be detected

Material color	Black color		Colored		White color - Transparent		Transparent	
Contaminants	Discolored (Bright contaminant)	Micro contaminants	Discolored (more than one color of contamination)		Discolored (Dark contaminant)	Micro black spot (less than 0.1mm)	Discolored (Dark contaminant)	Micro black spot (less than 0.1mm)
Super PLATON II	Excellent	Good	Good Color of fluorescent light can be changed*		Excellent	Excellent	Good	Excellent

*Screening accuracy will improve with these options, depending on the contrast of color between good material and contaminant.



Automatically screen and remove by air

USER VOICE

Until now, I had been very annoyed with the screening work of defective pellets. Because the inspection by human power is not highly accurate, so many screening errors occurred. However, it was difficult to execute 100% inspection due to the personnel and time limitation. Although we tried various improvements, the quality improvement of the product was not able to be achieved after all.

Therefore, we decided to install Kubota's screening system. It was not a cheap purchase for us, but as a result, it became possible to ship 100% of all products after inspection, and we were able to achieve "product quality improvement" without being bothered by the trouble of returned defective products.



Kubota's professional consultants will take you to "Next Feeding Stage"

It is a given for the gravimetric feeders to be able to feed material accurately. We, Kubota, will help you to move on to the Next Feeding Stage with accurate feeding as well as a proposal of innovative products and services.

As you would have expected, gravimetric feeders are installed in order to achieve "more accurate feeding". But do you know that "more accurate feeding" is guaranteed by "accurate weighing"? Kubota declares that our gravimetric feeders, which has been developed based on "weighing" and had been brushed up, have a history and installation results that are more than enough to gain the trust.

Whether the flow rate is really correct, is greatly influenced by the accuracy and the quality of the weighing sensor "digital load cell" that is implemented in the gravimetric feeders. We are not only one of the most famous manufacturers of the gravimetric feeders in Asia, but also a manufacturer of the digital load cell which is a key technology supporting "accurate weighing" at the same time.

We confidently suggest to you this perfect product that we have been developing and manufacturing on our own. But it is not only the products. The experts at Feeder Technical Center will promise the satisfaction of your requirements and demand for quality performance. At the time of installation and after installation, highly skilled technicians will support quickly, carefully and accurately.

We look forward to assisting your new Kubota experience by our staff in charge of your country and all the people involved, as the experts of your industry, the experts of raw materials, and the experts of the product.



Corporate Data

Corporate Name	KUBOTA Corporation
Head Office	2-47, Shikitsuhigashi 1-chome, Naniwa-ku, Osaka 556-8601 Japan TEL: +81-6-6648-2111
Tokyo Head Office	1-3, Kyobashi, 2-chome, Chuo-ku, Tokyo 104-8307 Japan TEL: +81-3-3245-3111
Board of Directors	Chairman and Representative Director Masatoshi Kimata President and Representative Director Yuichi Kitao
Established	1890
Capital	¥84.1 billion as of December 31, 2020
Revenues	¥1,853.2 billion Fiscal Year ended December 31, 2020 • Consolidated ¥865.6 billion Fiscal Year ended December 31, 2020 • Non-consolidated
Number of employees (Consolidated)	41,605 as of December 31, 2020 *The number of full-time employees.
Number of employees (Non-consolidated)	11,356 as of December 31, 2020 *The number of full-time employees.

SPECIFICATION

Loss-in-Weight Screw Feeder - NX

Model	Flow rate range	Hopper capacity	Weighing capacity	Screw type	Product weight	Power supply	Power capacity
NX-S50E-MP	2 - 300 L/hr	50L	40kg	Single	Approx.90kg	AC200-240V ±10% 1 phase (50Hz/60Hz)	1.3kVA
NX-S78E-MP	30 - 2,000 L/hr	100L	100kg		Approx.151kg		3.1kVA
NX-T26E-MP	1 - 300 L/hr	50L	40kg	Twin	Approx.92kg		1.3kVA
NX-T45ME-MP	10 - 2,000 L/hr	100L	100kg		Approx.157kg		3.1kVA

Micro Loss-in-Weight Screw Feeder - CE-W-0

Model	Flow rate range	Hopper capacity	Weighing capacity	Screw type	Product weight	Power supply	Power capacity
CE-W-0E-MP	0.05 - 50 L/hr	10L	5kg	Twin	Approx.75kg	AC200-240V ±10% 1 phase (50Hz/60Hz)	0.9kVA

Weigh Belt Feeder - B-WF

Model	Flow rate range	Belt Width	Screw Feeder		Product weight	Power supply	Power capacity
BW-150-1E-MP	2 - 1,500 L/hr	150mm	-		Approx.120kg	AC200-240V ±10% 1 phase (50Hz/60Hz)	0.5kVA
BW-300-1E-MP	4 - 10,000 L/hr	300mm	-		Approx.150kg		
BW-500-1E-MP	10 - 26,000 L/hr	500mm	-		Approx.190kg		
BW-300-2E-MP	4 - 2,200 L/hr	300mm	Fixed type	Single Screw	Approx.240kg	AC200-240V ±10% 1 phase (50Hz/60Hz)	1.8kVA
BW-300-3E-MP	4 - 450 L/hr			Twin Screw			
BW-300-4E-MP	4 - 2,200 L/hr		Movable type	Single Screw	Approx.270kg		
BW-300-5E-MP	4 - 450 L/hr			Twin Screw			

Vibration Loss-in-Weight Feeder - CE-V

Model	Flow rate range	Hopper Capacity	Weighing capacity	Trough width	Product weight	Power supply	Power capacity
CE-V-1D-MP	10 - 150 L/hr	25L	30kg	60mm	Approx.89kg	AC200-220V ±10% 1 phase (50Hz/60Hz)	0.3kVA
	20 - 400 L/hr			100mm			
CE-V-2D-MP	10 - 150 L/hr	50L	30kg	60mm	Approx.92kg		
	20 - 400 L/hr			100mm			
CE-V-3D-MP	80 - 1,000 L/hr	100L	100kg	150mm	Approx.200kg	0.4kVA	

Large Loss-in-Weight Screw Feeder - L-CWF

Model	Flow rate range	Hopper capacity	Weighing capacity	Screw type	Product weight	Power supply	Power capacity
CE-S-5E-MP	100 - 30,000 L/hr	500L	500kg	Single	Approx.480kg	AC200-240V ±10% 1 phase (50Hz/60Hz)	3.1kVA *Agitator type 7.6kVA
CE-S-6E-MP		1,000L	1,000kg		Approx.510kg		
CE-S-7E-MP		2,000L	2,000kg		Approx.600kg		
CE-T-5E-MP	100 - 10,000 L/hr	500L	500kg	Twin	Approx.500kg		
CE-T-6E-MP		1,000L	1,000kg		Approx.530kg		
CE-T-7E-MP		2,000L	2,000kg		Approx.620kg		

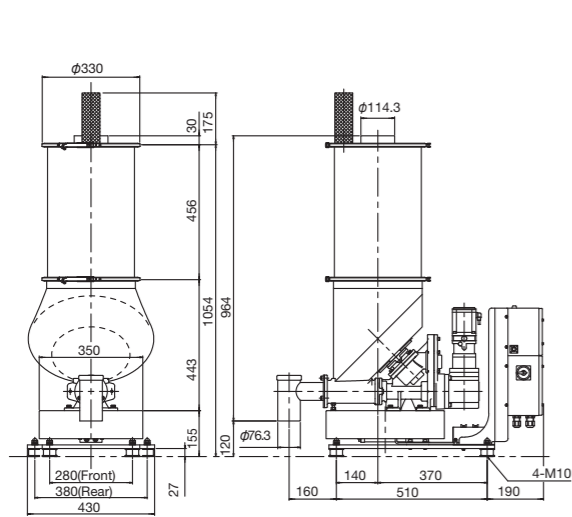
Liquid Loss-in-Weight Feeder - LWF

Model	Flow rate range	Hopper capacity	Weighing capacity	Pump type	Product weight	Power supply	Power capacity
CE-L-1D	1 - 80 L/hr	25L	25kg	Gear	Approx.120kg	AC200-220V ±10% 3 phase (50Hz/60Hz)	Power Line: 1.5-4.5kAV Heater: 2kVA
CE-L-2D	6 - 160 L/hr	50L	50kg	Gear	Approx.150kg		
CE-L-3D	6 - 250 L/hr	100L	100kg	Gear	Approx.210kg		Power Line: 1.5-11kAV Heater: 3kVA

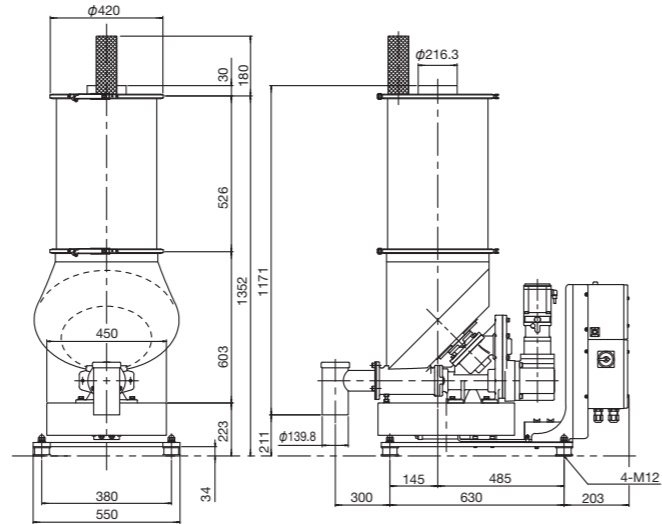
*Gear pump will be selected for the liquid with its viscosity over 100cP. For the liquid with viscosity under 100cP, another feeding methods like plunger pump would be recommended.

Versatile Loss-in-Weight Single Screw Feeder - NX-S

NX-S50E-MP

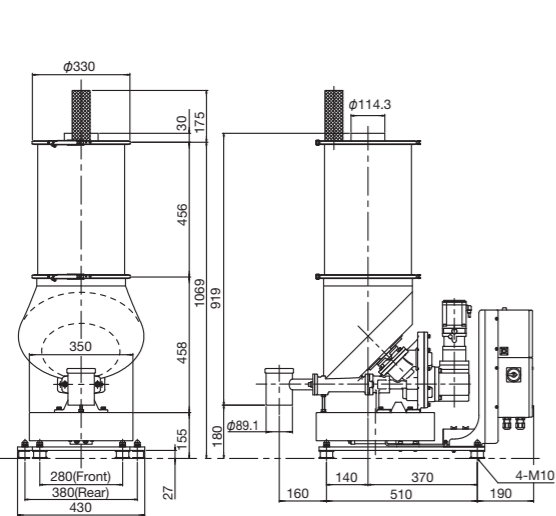


NX-S78E-MP

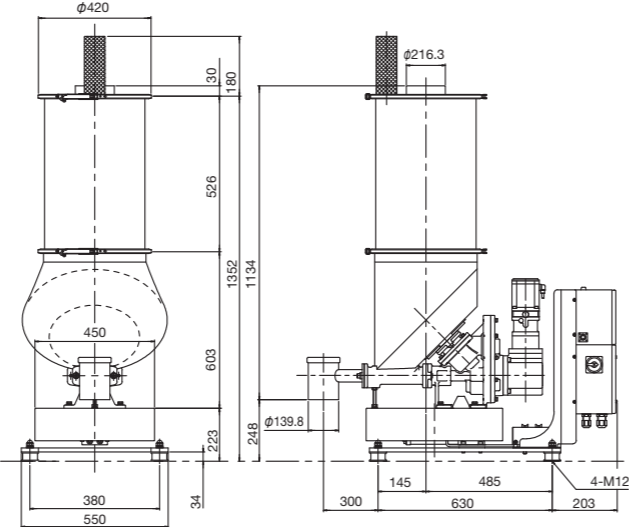


Versatile Loss-in-Weight Twin Screw Feeder - NX-T

NX-T26E-MP

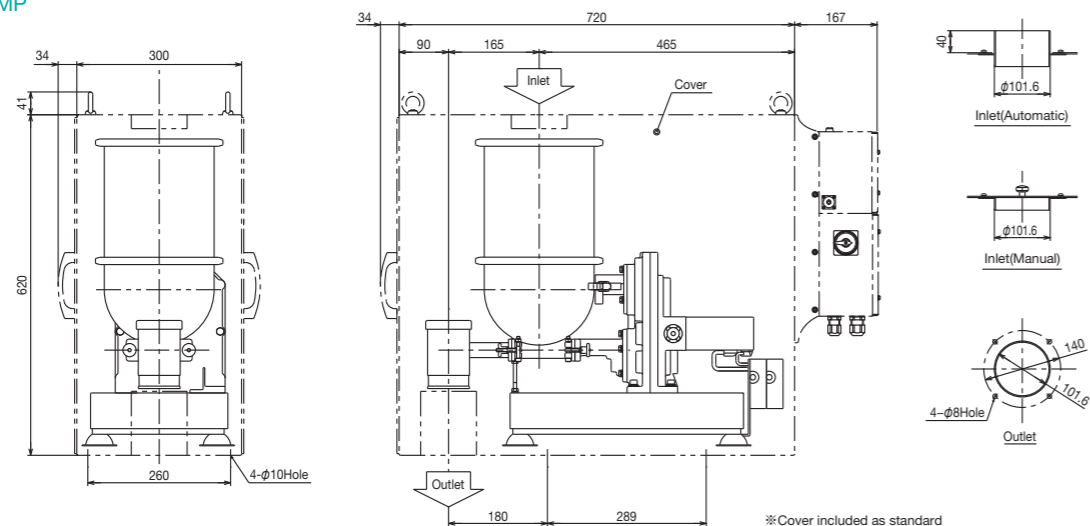


NX-T45ME-MP



Micro Loss-in-Weight Screw Feeder - CE-W-0

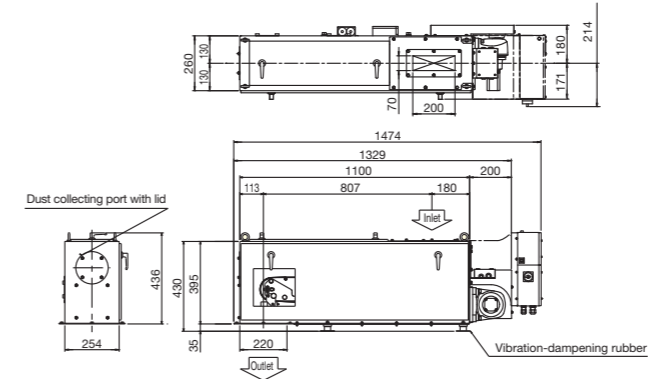
CE-W-0E-MP



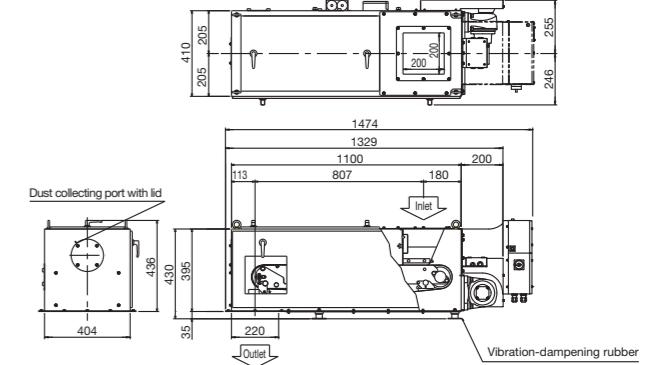
Weigh-Belt Feeder - B-WF

Standard Type

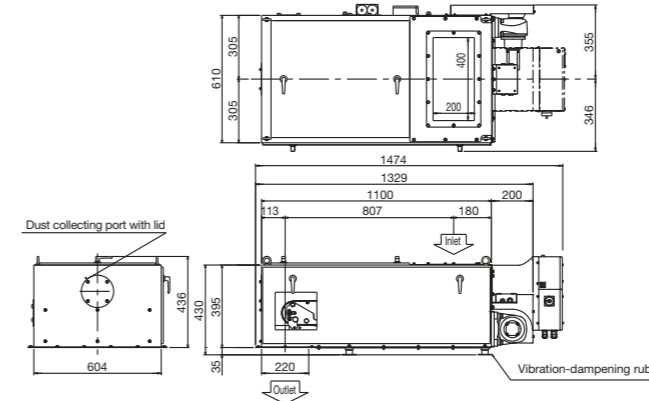
BW-150-1E-MP



BW-300-1E-MP

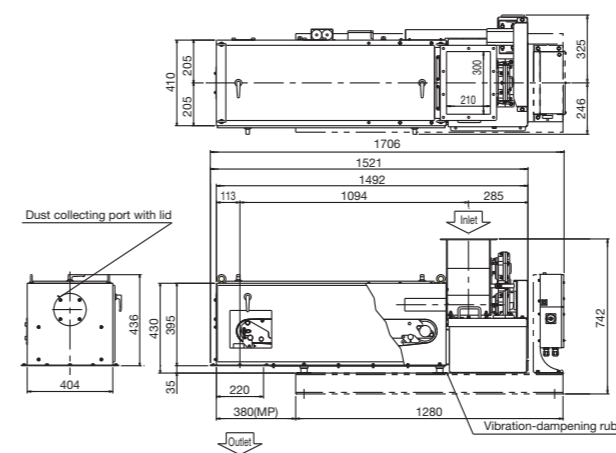


BW-500-1E-MP

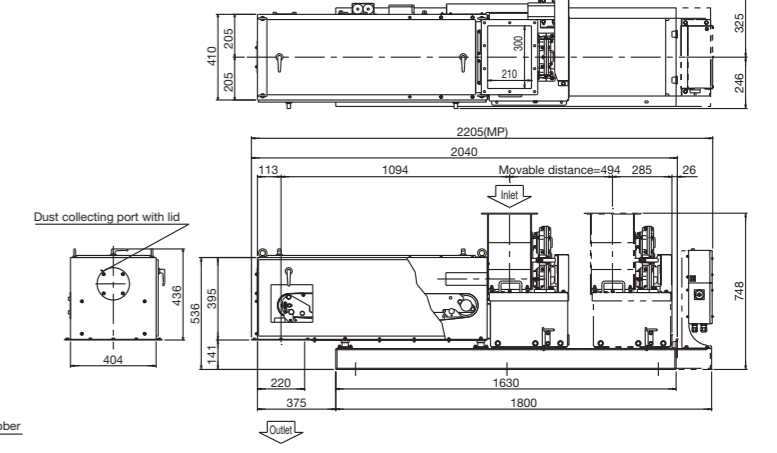


Screw Feeder Combination Type

BW-300-2E-MP/BW-300-3E-MP

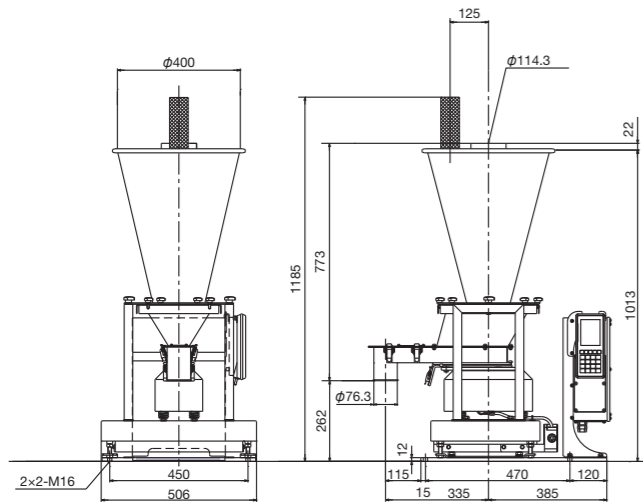


BW-300-4E-MP/BW-300-5E-MP

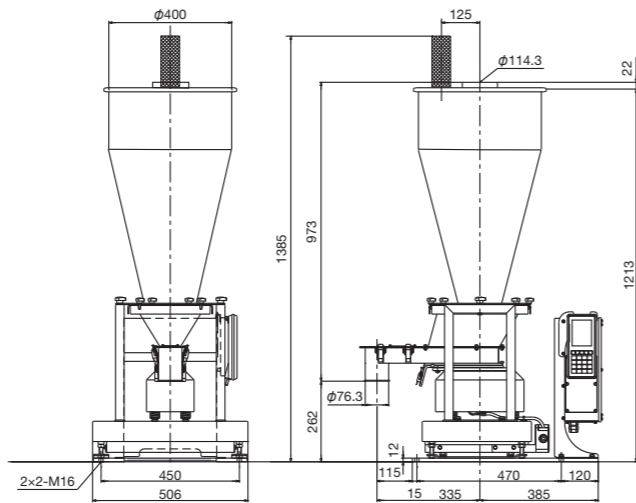


Vibration Loss-in-Weight Feeder - CE-V

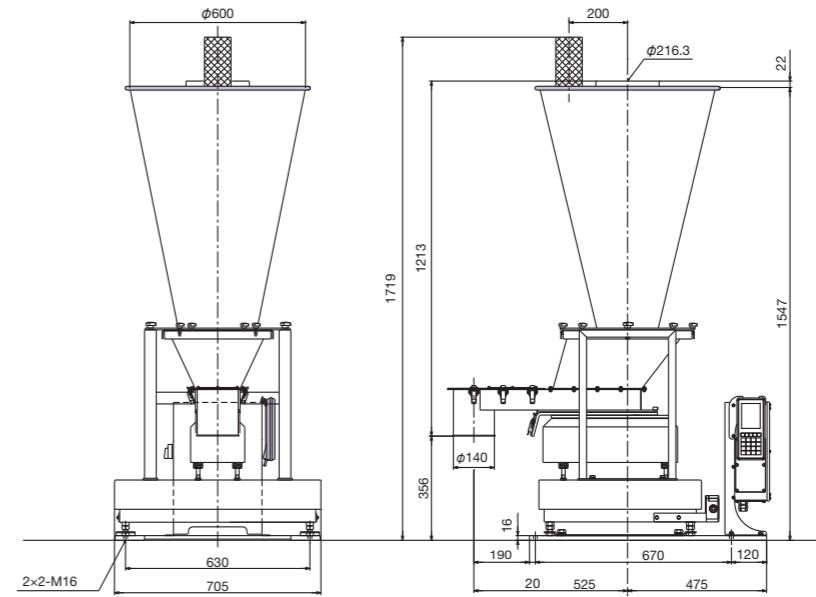
CE-V-1D-MP



CE-V-2D-MP

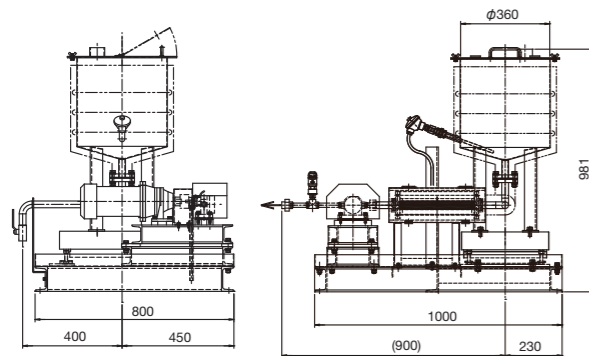


CE-V-3D-MP

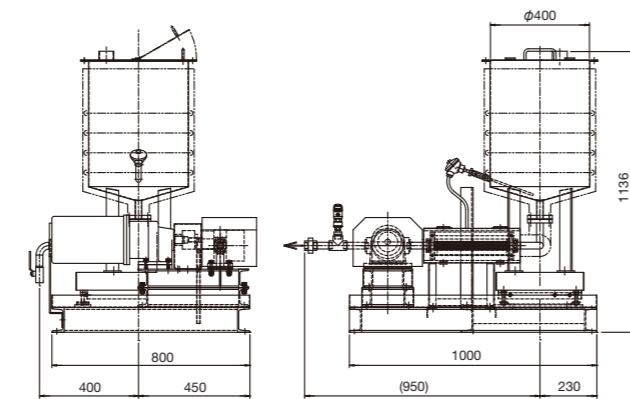


Liquid Loss-in-Weight Feeder - LWF

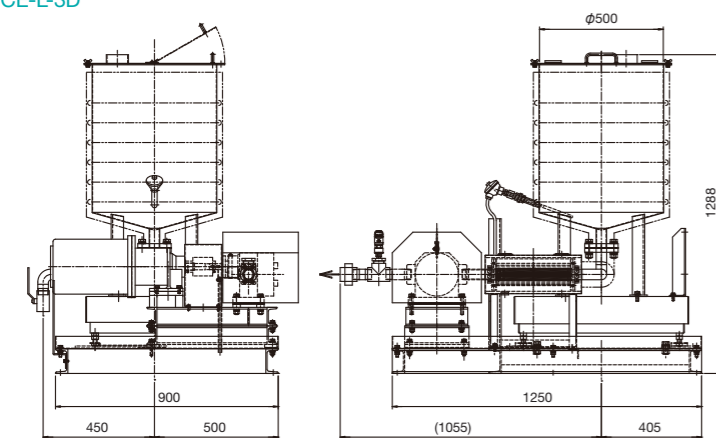
CE-L-1D



CE-L-2D

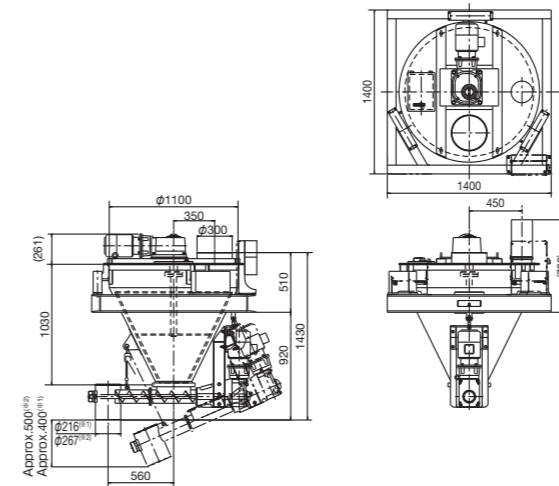


CE-L-3D

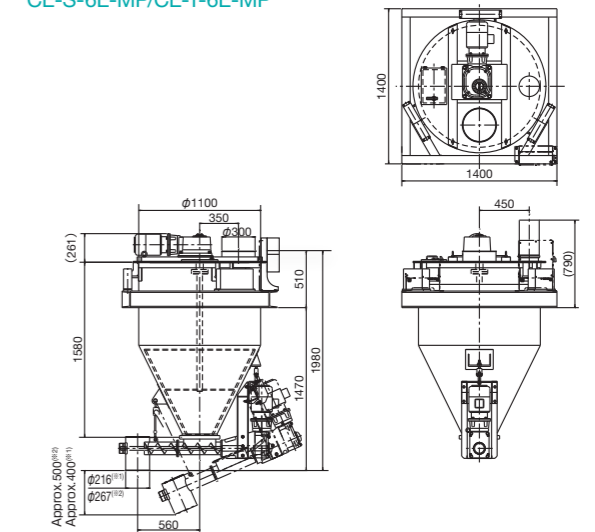


Large Loss-in-Weight Screw Feeder - L - CWF

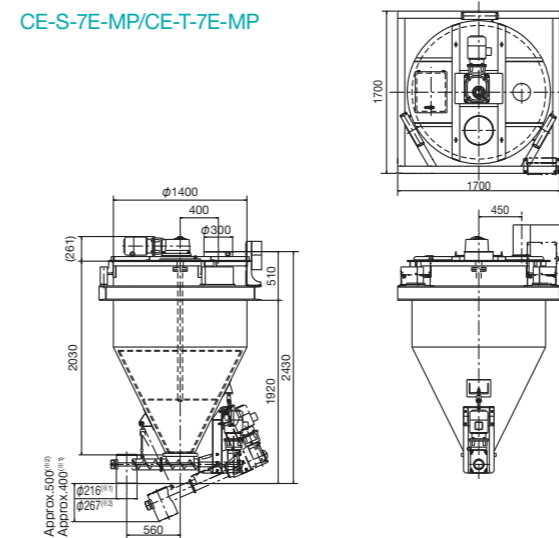
CE-S-5E-MP/CE-T-5E-MP



CE-S-6E-MP/CE-T-6E-MP



CE-S-7E-MP/CE-T-7E-MP



※1: In case of single screw ($\phi 140$ or less)
 ※2: In case of single screw ($\phi 140$ or more) and twin screw