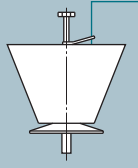
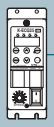
NTN®

PARTS FEEDER

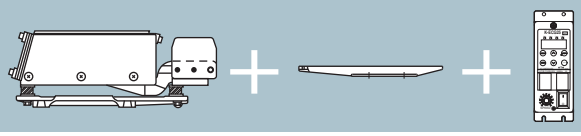
CAT. No. 7018-XIII／E

CONTENTS





Vibratory Drive Unit / Vibratory Trough / Controller



Warranty

NTN warrants, to the original purchaser only, that the delivered product which is the subject of this sale (a) will conform to drawings and specifications mutually established in writing as applicable to the contract, and (b) be free from defects in material or fabrication. The duration of this warranty is one year from date of delivery. If the buyer discovers within this period a failure of the product to conform to drawings or specifications, or a defect in material or fabrication, it must promptly notify **NTN** in writing. In no event shall such notification be received by **NTN** later than 13 months from the date of delivery. Within a reasonable time after such notification, **NTN** will, at its option, (a) correct any failure of the product to conform to drawings, specifications or any defect in material or workmanship, with either replacement or repair of the product, or (b) refund, in part or in whole, the purchase price. Such replacement and repair, excluding charges for labor, is at **NTN**'s expense. All warranty service will be performed at service centers designated by **NTN**. These remedies are the purchaser's exclusive remedies for breach of warranty.

NTN does not warrant (a) any product, components or parts not manufactured by **NTN**, (b) defects caused by failure to provide a suitable installation environment for the product, (c) damage caused by use of the product for purposes other than those for which it was designed, (d) damage caused by disasters such as fire, flood, wind, and lightning, (e) damage caused by unauthorized attachments or modification, (f) damage during shipment, or (g) any other abuse or misuse by the purchaser.

THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

In no case shall **NTN** be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict tort, or any other legal theory,and in no case shall total liability of **NTN** exceed the purchase price of the part upon which such liability is based. Such damages include, but are not limited to, loss of profits, loss of savings or revenue, loss of use of the product or any associated equipment, cost of capital, cost of any substitute equipment, facilities or services, downtime, the claims of third parties including customers, and injury to property. Some states do not allow limits on warranties, or on remedies for breach in certain transactions. In such states, the limits in this paragraph and in paragraph (2) shall apply to the extent allowable under case law and statutes in such states.

Any action for breach of warranty or any other legal theory must be commenced within 15 months following delivery of the goods.

Unless modified in a writing signed by both parties, this agreement is understood to be the complete and exclusive agreement between the parties, superceding all prior agreements, oral or written, and all other communications between the parties relating to the subject matter of this agreement. No employee of **NTN** or any other party is authorized to make any warranty in addition to those made in this agreement.

This agreement allocates the risks of product failure between **NTN** and the purchaser. This allocation is recognized by both parties and is reflected in the price of the goods. The purchaser acknowledges that it has read this agreement, understands it, and is bound by its terms.

NTN

PARTS FEEDER

NTN Parts Feeders

From precision machine parts to foods...

Four series of drive units for a broad range of applications, for anything from miniature parts to large billets

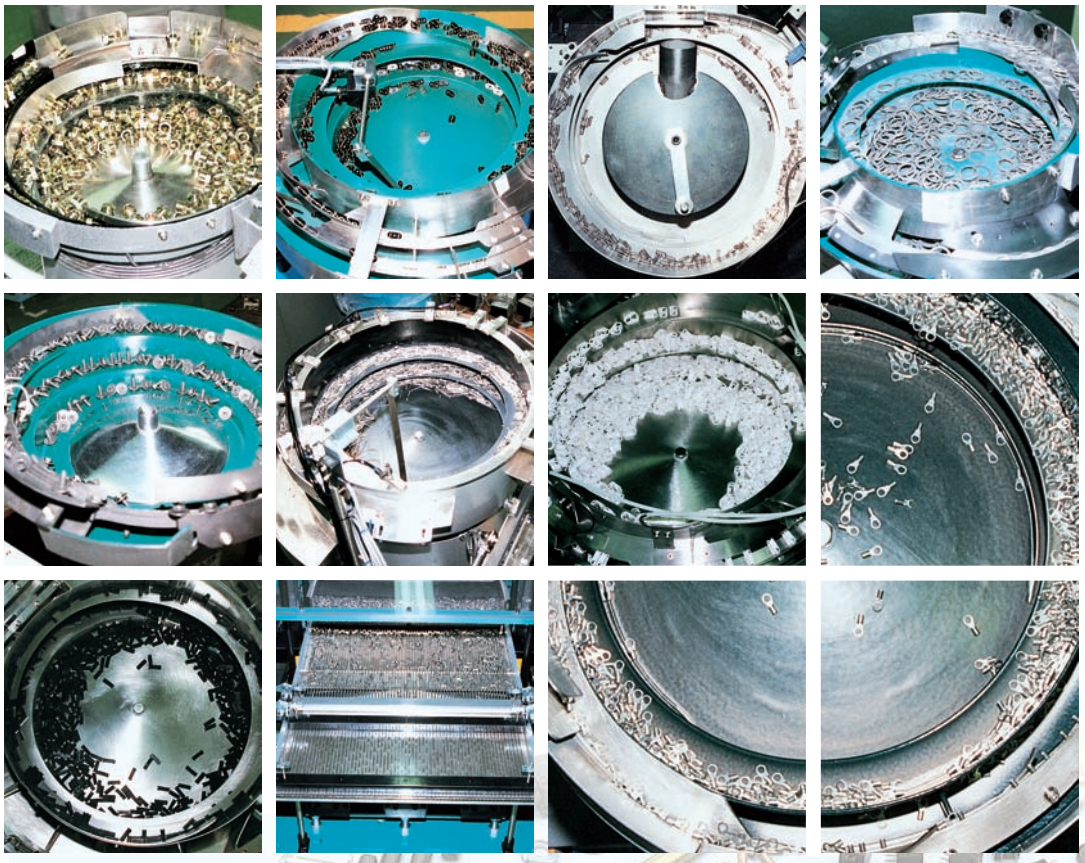
NTN Parts Feeders can automatically align a wide variety of components (machine parts, electronic parts, plastic parts, chemicals, pharmaceuticals, foods, miscellaneous goods, etc., as illustrated below), and feed them via a vibratory trough for processing in automated production machines.
Parts feeders are simple devices comprised of leaf springs, electromagnets, the vibratory vessel and various other parts. Their main functions are to align and feed parts in manufacturing and assembly processes–critical tasks in today's increasingly diversified and technologically complex production systems. For improved production efficiency, parts feeders must be both faster and more reliable.
To meet these demands, **NTN** has developed the following four series of vibratory drive units, each of which is designed for different applications, depending on the size and material of work pieces.

- **HF-series**, high-frequency drive, for miniature electronic parts and low profile parts.
- **K-series**, simple, high-performance feeders, for small parts from 1 mm to approx. 10 mm.
- **N-series**, the best-selling traditional horizontal vibration feeder, with an isolated bottom, for general medium-size parts.
- **G-series**, fitted with a powerful W spring, for larger parts.

With these four series to choose from, you can always select the optimum drive unit for your parts. To fully utilize the performance potential of these highly stable vibratory drive units, a variety of tooling units are available, including bowls (vibratory vessels) and controllers (control devices). Using the combinations lists (pages 52 to 63), anyone can quickly, and easily find the ideal combination of equipment for the job at hand. In addition, many other accessories, including the standard stay assembly parts, which are required for setting linear feeders and vibratory troughs, are also available.
We are confident that **NTN** Parts Feeders can satisfy your demands for higher levels of automation and labor savings.

Excellent tooling technology through long years of experience

Attachments of various shapes which are fitted either inside or outside the bowls to aid in aligning the parts are also available.
The attachments used for particular types of work pieces greatly affect the performance of parts feeders. **NTN**'s tooling technology, which spans everything from design and production through to fine tuning attachments, has been developed out of many years of experience, and handles the automatic alignment and feeding of many kinds of traditionally difficult parts. **NTN** products are peerless in their workmanship and finish.



Standard series

Bowl feeder series

(Refer to page 6)

HF-series

K-series

N-series

G-series

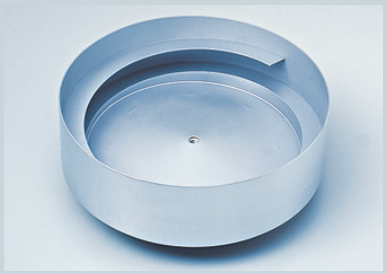
Bowl series

(Refer to page 7)

Precision machined bowl

Cascade bowl

Stainless steel cascade bowl



Straight wall bowl

Cone bowl

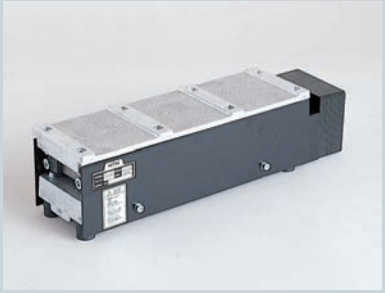
Dish bowl

Linear feeder series

(Refer to page 8)

HS-series

S-series



L-series

Hopper series

(Refer to page 8)

Detached hopper

Space-saving hopper

Rotary hopper

Controller series

(Refer to page 9)

Variable frequency controller

SMD controller

I/O controller unit

Bowl feeder series

Numbers in shaded area indicate reference pages.

HF-series

11

HF-series bowl feeders can smoothly feed miniature and low profile parts at high speed through an F-series horizontal drive running at high-frequency via a variable frequency controller.
Use in conjunction with HS-series.

(1) High-speed, stable feeding
(2) Highly rigid isolating vibration
(3) Height adjustment mechanism

K-series

12・13

K-series bowl feeders are intended for small parts, including electronic components.
Simple, open construction and well thought out spring mechanism design allow precise and stable vibration for long periods of time.

(1) Precise full wave drive
(2) Height adjustment mechanism
(3) Attractive coverless construction

N-series (See exploded view below.)

14 to 19

The N-series are **NTN**'s most representative bowl feeders featuring stable operation and high durability by incorporating a traditional isolated bottom and horizontal drive. The new N32 model has been added to expand the N-series range.

(1) Low noise
(2) No adjustment required
(3) High-speed, stable feeding
(4) Auxiliary hopper can be fitted.
(5) Fastening base plate fitted as standard.

Isolated bottom construction

Since the bottom is isolated from the bowl, it does not vibrate. Only the tracks around the bowl are vibrated during operation. This design generates less noise, and keeps the vibrating mass unchanged. Thus, feed speed is always constant. In addition, an auxiliary hopper can be installed in the bowl.

Vibration system

Unlike conventional vertical drive feeders, which have high-capacity electromagnets, a horizontal drive is employed in N-series bowl feeders by evenly distributing several weaker electromagnets around the circumference so that force is distributed evenly and smoothly in the direction of vibration. Good balance in vibrational amplitude allows high-speed feeding without the need for frequent adjustments.

Exploded view of N25 type

G-series

20・21

G-series are powerful bowl feeders for large and heavy work pieces. This series of feeders includes the G50 and the more powerful G63.

(1) Powerful leaf spring
(2) Enhanced drive system
(3) Reduced vibration transmission
(4) Isolated bottom can be installed.

Bowl series

Numbers in shaded area indicate reference pages.

Precision machined bowl

22 · 29

Suitable for aligning and feeding minute parts

(1) Precision machined tracks
(2) Selection of bowl shapes for different applications
(3) NC tooling is possible
(4) Machined inside surface

Cascade bowl

22 · 23

For general applications (all-purpose)

(1) A virtually non-stick bowl
(2) Light weight (aluminum alloy casting)
(3) Cost-effective (mass-produced by precision casting)
(4) Inside surface is protected with a black polyurethane coating.

Stainless steel sheet cascade bowl

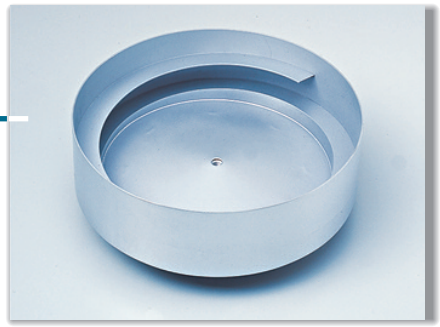
24 · 25

Suitable for foods and medicine

(1) All tracks surfaces can be smooth-finished for complete discharge of minute components.
(2) A virtually non-stick bowl
(3) Unfinished stainless steel surface inside the bowl

Straight wall bowl

26 · 27



Suitable for special applications

(1) Uniform circumference permits easy installation of attachments.
(2) Longer, more complex attachments than for cascade bowl can be used.
(3) Easy incorporation of recycling tracks (smooth recycling is possible by returning work pieces to the bottom of the bowl and guiding them to below the first tracks)
(4) Untreated, as-rolled stainless steel surface inside the bowl

Cone bowl

28

For general applications

(1) A virtually non-stick bowl
(2) Uniform circumference permits easy installation of attachments.
(3) Easier incorporation of recycling tracks than the cascade bowl
(4) Unfinished, stainless steel surface inside

Dish bowl

29

For high-speed feeding of low-profile parts.

(1) Low-profile parts can be easily fed at high speed via narrow tracks without special reworking for attachments.
(2) Unfinished, stainless steel surface inside

Linear feeder series

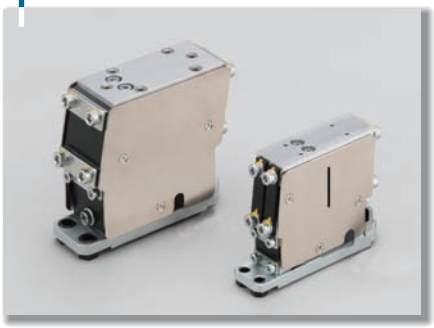
Numbers in shaded area indicate reference pages.

S-series 30・31

S-series feeders connect **NTN** bowl feeders with automated production equipment near-horizontally and near-linearly.

(1) Constant feed speed
(2) Stable operation for long periods
(3) Easy installation and adjustment

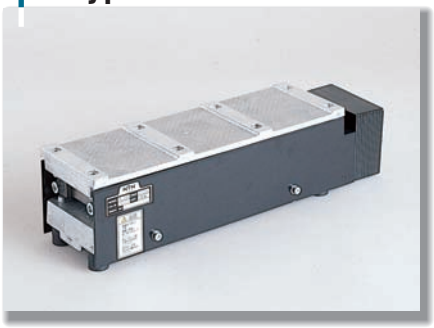
HS-series 32



HS-series feeders feed miniature parts, including chips and other electronic components at high speed.
Use in conjunction with HF-series.

(1) Built-in height adjustment mechanism
(2) Stable positioning

L-type 32



L-type feeders can be operated after a simple adjustment, and are also applicable for low profile parts.

(1) Easy design of vibratory troughs
(2) Smooth, high-speed feeding

Hopper series

Numbers in shaded area indicate reference pages.

Detached hopper 34

The detached hopper has a specially designed storage tank to allow the automatic supply of a large number of parts for a long time.
Eleven models are available.
The level switch and controller which control hopper operation according to the quantity of parts in the bowl are standard equipment.

(1) Low noise
(2) Stable discharge of work

Space-saving hopper 35

The space-saving hopper is compact for maximum utilization of available space.
The tank and vibratory trough are supported by a round bar, so that the whole hopper unit can be installed directly above the bowl feeder.
A compact, highly sensitive level switch is also provided.

(1) Space-saving
(2) Easy inspection and maintenance
(3) Stable discharge of work

Rotary hopper 36

This detached storage hopper feeds work ranging from fine powder to minute parts.

(1) Stable discharge of minute parts
(2) No vibration, no noise
(3) Reliable regardless of shape and material of work

Controller series

Numbers in shaded area indicate reference pages.

Variable frequency controller

38・39

Simple to set up, the variable frequency controller reliably controls parts feeders regardless of the power frequency.

(1) No adjustment of the leaf spring is needed.
(2) Simple digital setup.
(3) Capable of controlling a larger parts feeder.

SMD controller

40

The SMD controller supplies stable power tooptimally drive the SMD feeder.

(1) One twin-type controller unit is capable of controlling both a bowl feeder and a linear feeder.
(2) The arrangement of the digital switch allows the user to read the settings directly.
(3) Wider variable frequency range.
(4) The highly functional type features built-in I/O control for selection, overflow and other factors.

I/O controller unit

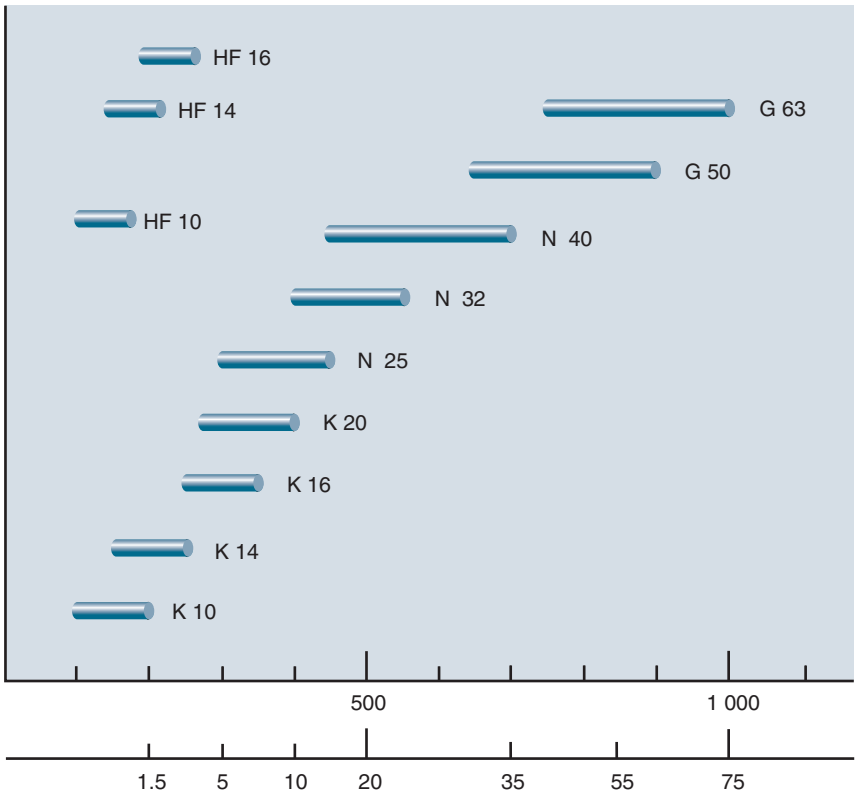
42

To control the parts feeder system with the I/O controller unit, the operator need only enter a program number and define the timer setting.

(1) The controller unit is ready to operate once the operator has entered a program numbe and timer setting.
(2) Space requirements for installation are greatly reduced.
(3) Low cost and short lead time

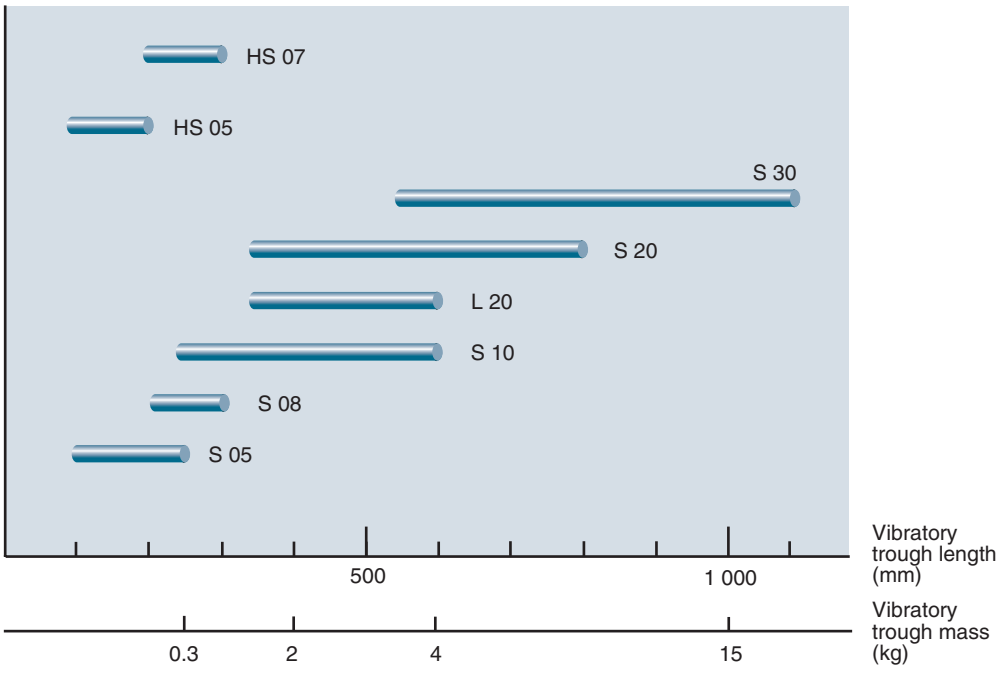
Once the outer diameter of the bowl and vibratory trough length are determined, suitable vibratory drives can be selected from the graphs below.
For details, refer to pages 6 and 7 in the "Parts Feeder Guide Book" (CAT.No.7019/E).

Appropriate bowl sizes for bowl feeders



Bowl outer diameter and mass figures include attachments.

Appropriate vibratory trough sizes for linear feeders



HF10,14,16

NTN parts feeder

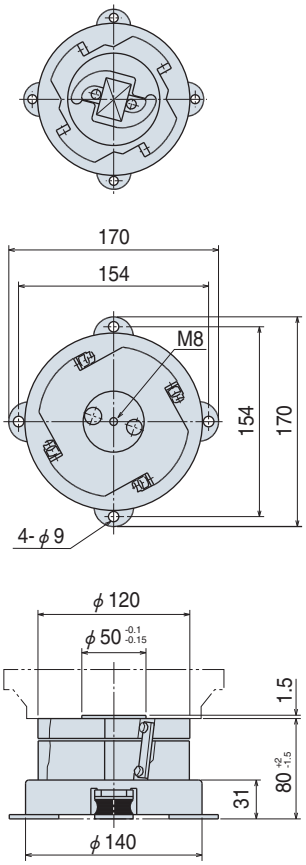
HF series

(High-frequency bowl feeder)

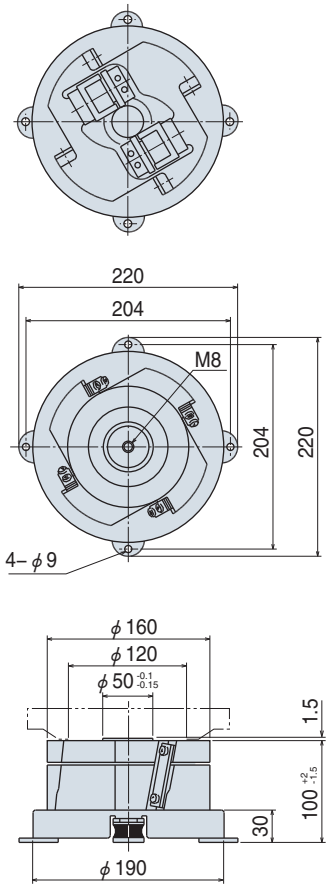
K- HF 14 R 2 1

- Voltage and drive system
- Design revision code
- Supply direction (R: clockwise, L: counterclockwise)
- Size
- Model

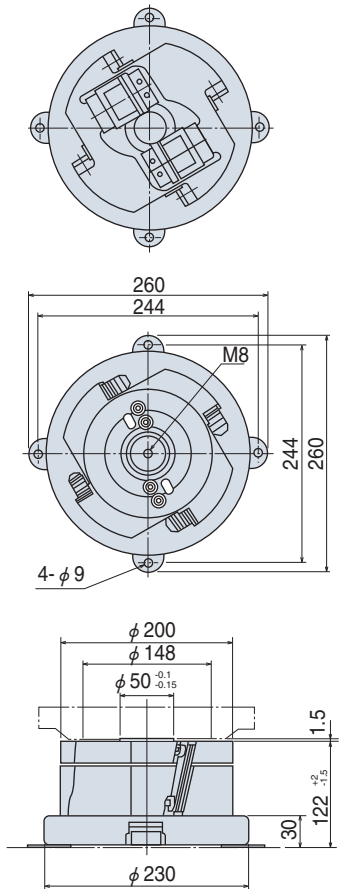
K-HF10$^{R}_{L}$21



K-HF14$^{R}_{L}$21



K-HF16$^{R}_{L}$1



Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ °)	Vibration frequency (Hz)	Mass (kg)	Remarks
HF10	K-HF10$^{R}_{L}$21	100	0.2	K-ET918	K-PLS2-35×12	12°	200 ～300	4.5	w/ height adjustment mechanism
HF14	K-HF14$^{R}_{L}$21		0.9		K-PLS2-50×20			10.9	
HF16	K-HF16$^{R}_{L}$1		1.6	K-ECF25	K-PLS2-67×23		200 ～260	19	

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table on page 46.

K10,14

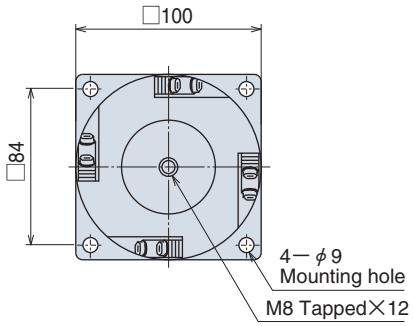
NTN parts feeder

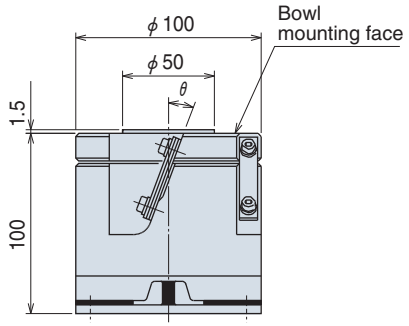
K series

K- K 10 R □ 1

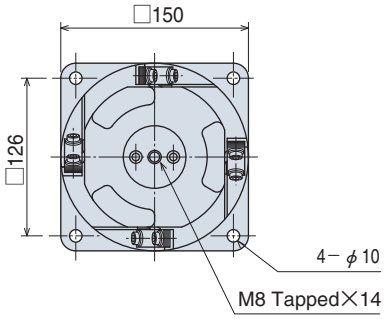
- Voltage and drive system
- Design revision code
- Supply direction (R: clockwise, L: counterclockwise)
- Size
- Model

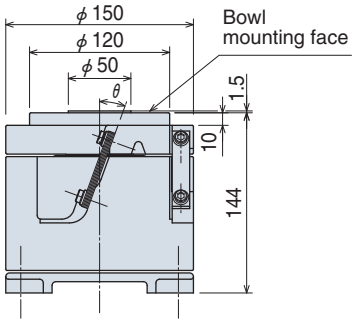
K-K10 R1 L2





K-K14 R1 L2





Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable ❶ controller	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Mass (kg)	Remarks
K10	K-K10R1	100	0.3	K-ECF25	K-PLS2-35×5	20°	90～130	3.6	—
	K-K10R2	200	0.15						
K14	K-K14R1	100	0.7		K-PLS2-50×9			10.0	—
	K-K14R2	200	0.35						

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 47.

K16,20

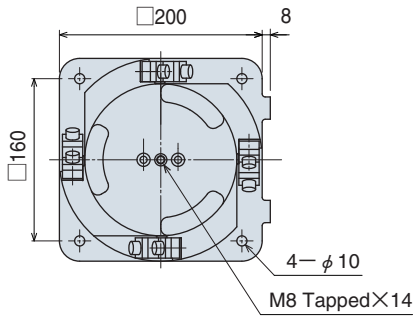
NTN parts feeder

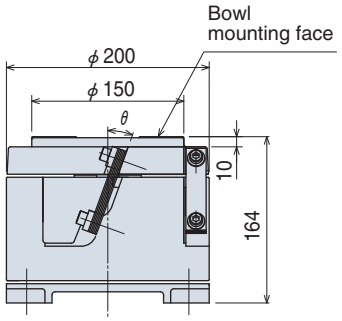
K series

K- K 16 R 3 1

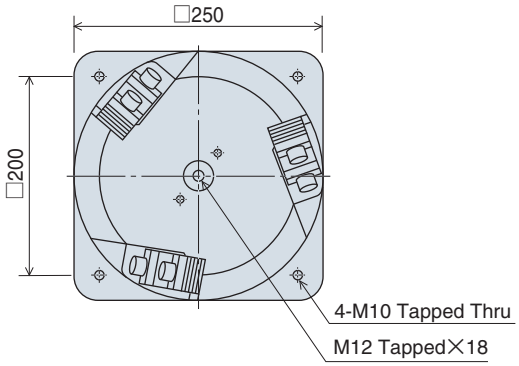
- 1 — Voltage and drive system
- 2 — Design revision code
- 3 — Supply direction (R: clockwise, L: counterclockwise)
- 16 — Size
- K — Model

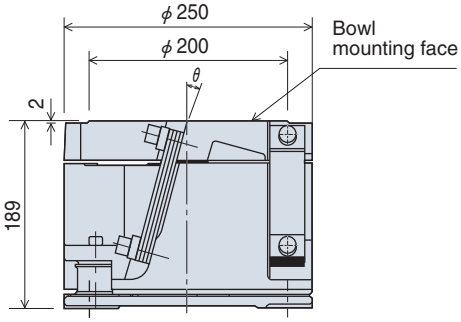
K-K16 R/L 3 1/2





K-K20 R/L 1/2, K-K20 R/L 3/4





Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable ❶ controller	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Mass (kg)	Remarks
K16	K-K16 R/L 31	100	1.8	K-ECF25 K-ECH45	K-PLS2-67×12-1	20°	90～130	20	Full wave
	K-K16 R/L 32	200	0.3						
K20	K-K20 R/L 1	100	2.5		K-PLS2-116×35-1	15°		35	
	K-K20 R/L 2	200	1.5						
	K-K20 R/L 3	100	2.0		K-PLS2-116×20-2	25°	45～65		Half wave
	K-K20 R/L 4	200	1.0						

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 47.

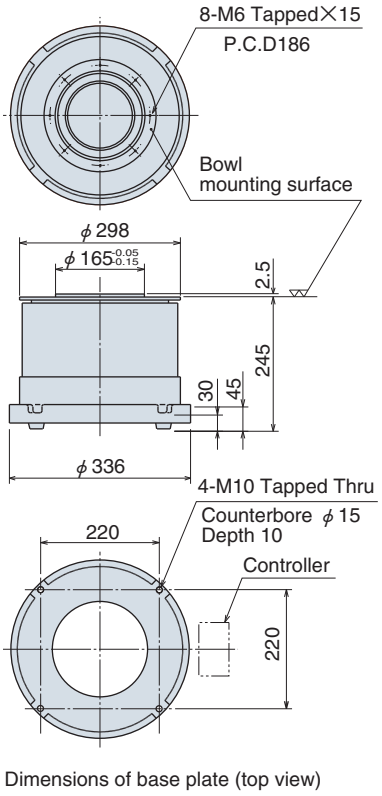
N25

NTN parts feeder

N series

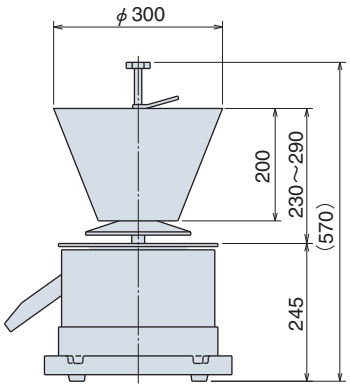
K- N 25 R A M 2
- 2: Voltage and drive system
- M: Bowl mounting type
- A: Design revision code
- R: Supplying direction (R: clockwise, L: counterclockwise)
- 25: Size
- N: Model

K-N25$^{R}_{L}$M$^{1}_{2}$

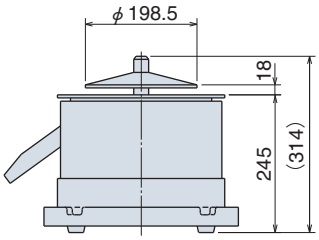


Dimensions of base plate (top view)

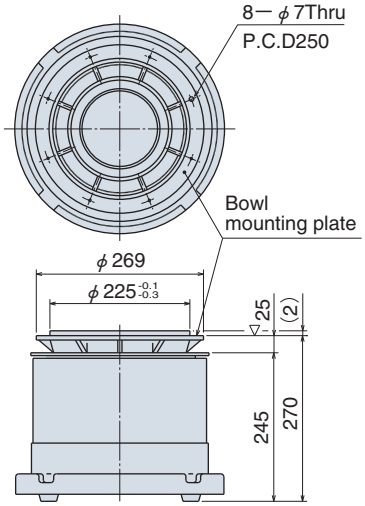
K-N25$^{R}_{L}$H$^{1}_{2}$



K-N25$^{R}_{L}$T$^{1}_{2}$



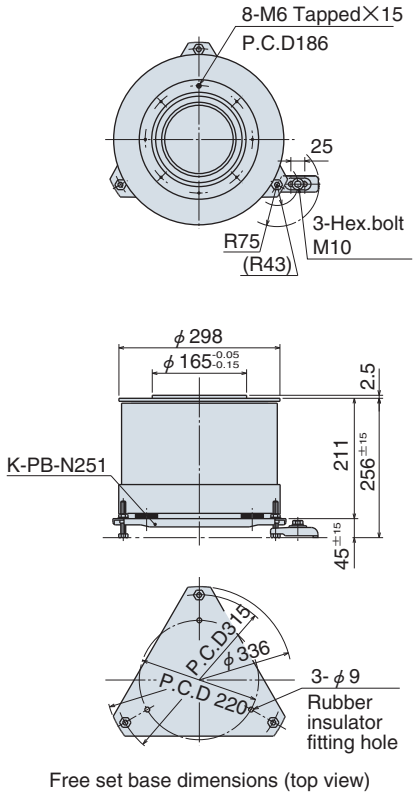
K-N25$^{R}_{L}$F$^{1}_{2}$



Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable ❶ controller	Applicable leaf spring	Leaf spring angle (θ ˚)	Vibration frequency cycles/min	Mass (kg)	Remarks
N25	K-N25$^{R}_{L}$M1	100	3.6	K-ECF25 K-ECH45	K-PLS2-86×20	15˚	90～130	48	Basic type
	K-N25$^{R}_{L}$M2	200	1.8						
	K-N25$^{R}_{L}$H1	100	3.6					52	w/ aux. hopper in the bowl
	K-N25$^{R}_{L}$H2	200	1.8						
	K-N25$^{R}_{L}$T1	100	3.6					49	w/ isolated bottom
	K-N25$^{R}_{L}$T2	200	1.8						
	K-N25$^{R}_{L}$F1	100	3.6					49	w/ bowl mounting flange
	K-N25$^{R}_{L}$F2	200	1.8						

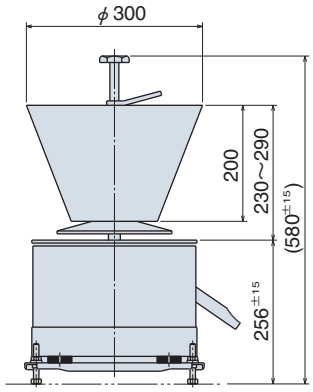
❶The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 48.

K-N25$^{R}_{L}$AM$^{1}_{2}$

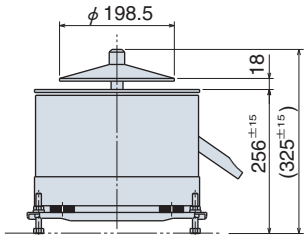


Free set base dimensions (top view)

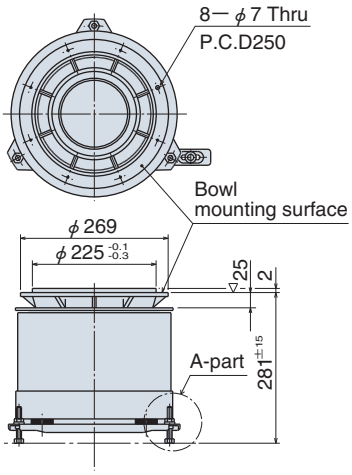
K-N25$^{R}_{L}$AH$^{1}_{2}$

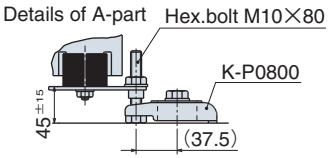


K-N25$^{R}_{L}$AT$^{1}_{2}$



K-N25$^{R}_{L}$AF$^{1}_{2}$





Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable ❶ controller	Applicable leaf spring	Leaf spring angle (θ °)	Vibration frequency cycles/min	Mass (kg)	Remarks	
N25·A ❷	K-N25$^{R}_{L}$AM1	100	3.6	K-ECF25 K-ECH45	K-PLS2-86×20	15°	90~130	44	w/ free set base	basic type
	K-N25$^{R}_{L}$AM2	200	1.8							
	K-N25$^{R}_{L}$AH1	100	3.6					48		w/ aux. hopper in the bowl
	K-N25$^{R}_{L}$AH2	200	1.8							
	K-N25$^{R}_{L}$AT1	100	3.6					45		w/ isolated bottom
	K-N25$^{R}_{L}$AT2	200	1.8							
	K-N25$^{R}_{L}$AF1	100	3.6					45		w/ bowl mounting flange
	K-N25$^{R}_{L}$AF2	200	1.8							

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 48.
❷ 25.A will be supplied with three height adjusting bolts (M10×80) and three clamps (K-P0800).

N32

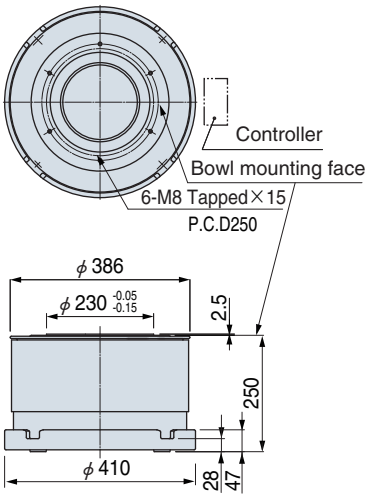
NTN parts feeder

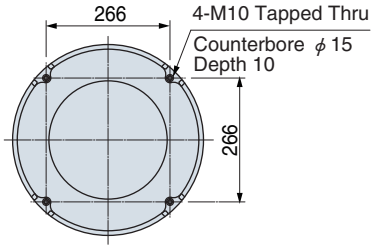
N series

K- N 32 R 2 M 2

- Voltage and drive system (2: Full wave, 4: Half wave)
- Bowl mounting type
- Design revision code
- Supplying direction (R: clockwise, L: counterclockwise)
- Size
- Model

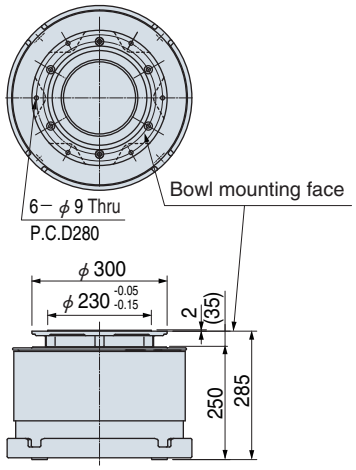
K-N32 R/L 2M 2/4



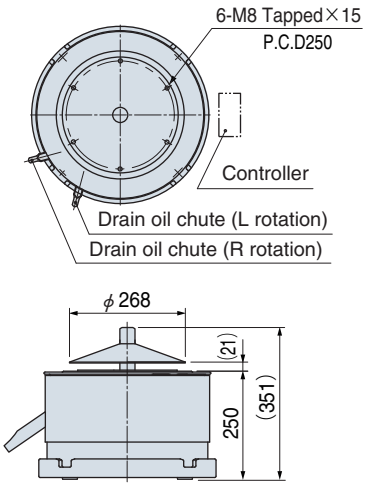


Base plate dimensions (top view)

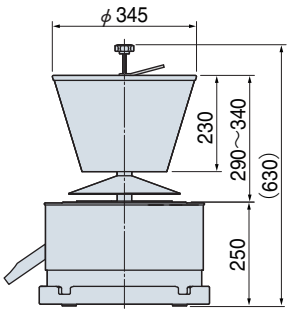
K-N32 R/L 2F 2/4



K-N32 R/L 2T 2/4



K-N32 R/L 2H 2/4



Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Mass (kg)	Remarks
N32 · 2	K-N32 R/L 2M2	200	2.8	K-ECH45	K-PLS2-116×40	15°	90~130 or 45~65	68	basic type
	K-N32 R/L 2M4		3.5		K-PLS2-116×20				
	K-N32 R/L 2H2		2.8		K-PLS2-116×40			76	w/ aux. hopper in the bowl
	K-N32 R/L 2H4		3.5		K-PLS2-116×20				
	K-N32 R/L 2T2		2.8		K-PLS2-116×40			72	w/ isolated bottom
	K-N32 R/L 2T4		3.5		K-PLS2-116×20				
	K-N32 R/L 2F2		2.8		K-PLS2-116×40			69	w/ bowl mounting flange
	K-N32 R/L 2F4		3.5		K-PLS2-116×20				

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 49 to 50.

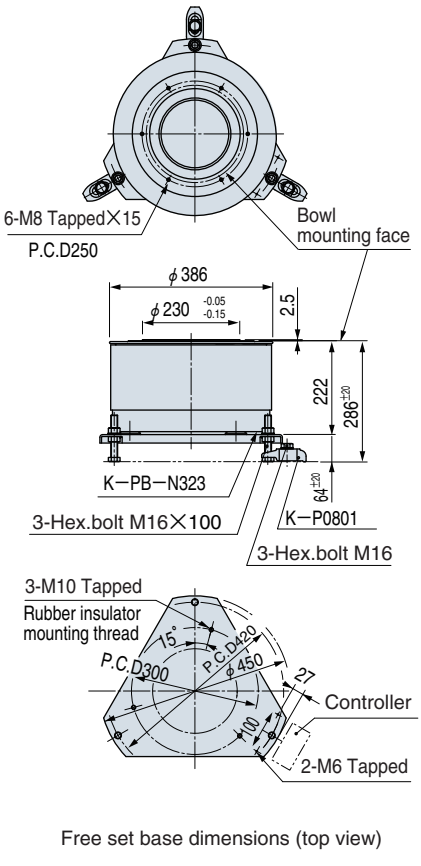
NTN parts feeder

N series

K- N 32 R AM 2

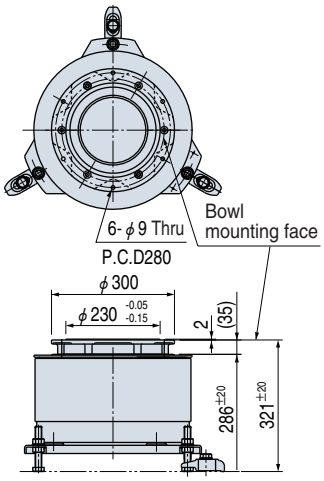
- Voltage and drive system (2: Full wave, 4: Half wave)
- Bowl mounting type
- Design revision code
- Supplying direction (R: clockwise, L: counterclockwise)
- Size
- Model

K-N32 R/L AM 2/4

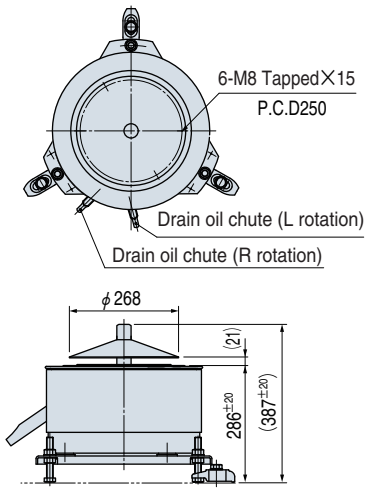


Free set base dimensions (top view)

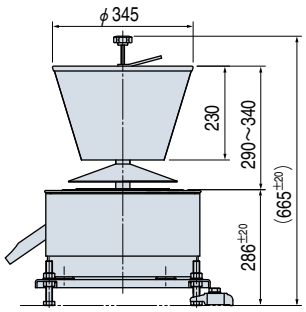
K-N32 R/L AF 2/4



K-N32 R/L AT 2/4



K-N32 R/L AH 2/4



Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Mass (kg)	Remarks	
N32・A ❷	K-N32□AM2	200	2.8	K-ECH45	K-PLS2-116×40	15°	90～130 or 45～65	64	w/ free set base	basic type
	K-N32□AM4		3.5		K-PLS2-116×20					
	K-N32□AH2		2.8		K-PLS2-116×40			72		w/ aux. hopper in the bowl
	K-N32□AH4		3.5		K-PLS2-116×20					
	K-N32□AT2		2.8		K-PLS2-116×40			68		w/ isolated bottom
	K-N32□AT4		3.5		K-PLS2-116×20					
	K-N32□AF2		2.8		K-PLS2-116×40			65		w/ bowl mounting flange
	K-N32□AF4		3.5		K-PLS2-116×20					

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 49 to 50.
❷ N32.A will be supplied with three height adjusting bolts (M16×100) and three clamps (K-P0801).

N40

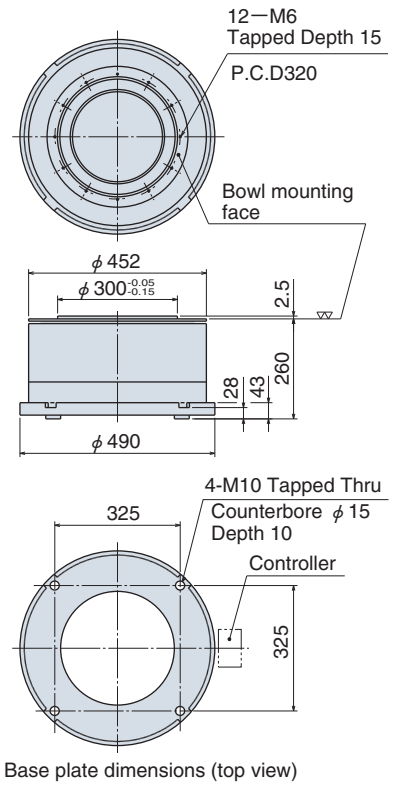
NTN parts feeder

N series

K- N 40 R 1 M 2

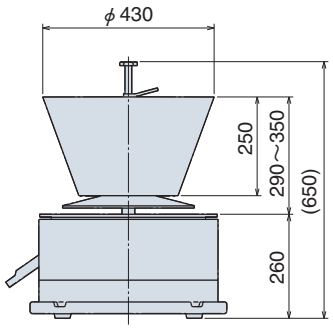
- Voltage and drive system (2: Full wave, 4: Half wave)
- Bowl mounting type
- Design revision code
- Supplying direction (R: clockwise, L: counterclockwise)
- Size
- Model

K-N40$^{R}_{L}$M$^{2}_{4}$

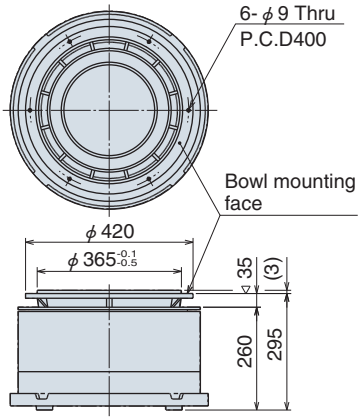


Base plate dimensions (top view)

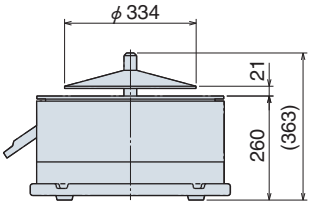
K-N40$^{R}_{L}$H$^{2}_{4}$



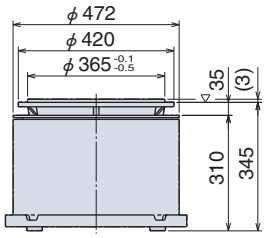
K-N40$^{R}_{L}$F4



K-N40$^{R}_{L}$T$^{2}_{4}$



K-N40$^{R}_{L}$1F4



Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Mass (kg)	Remarks
N40	K-N40$^{R}_{L}$M2	200	2.8	K-ECH45	K-PLS2-86×20	15°	90~130 or 45~65	90	basic type
	K-N40$^{R}_{L}$M4		3.5		K-PLS2-116×20				
	K-N40$^{R}_{L}$H2		2.8		K-PLS2-86×20			98	w/ aux. hopper in the bowl
	K-N40$^{R}_{L}$H4		3.5		K-PLS2-116×20				
	K-N40$^{R}_{L}$T2		2.8		K-PLS2-86×20			94	w/ isolated bottom
	K-N40$^{R}_{L}$T4		3.5		K-PLS2-116×20				
	K-N40$^{R}_{L}$F4							93	w/ bowl mounting flange
N40·1	K-N40$^{R}_{L}$1M4	200	3.5		K-PLS2-150×30			110	N40 wide amplitude: basic type
	K-N40$^{R}_{L}$1H4							118	N40 wide amplitude: w/ aux. hopper in the bowl
	K-N40$^{R}_{L}$1T4							114	N40 wide amplitude: w/ isolated bottom
	K-N40$^{R}_{L}$1F4							113	N40 wide amplitude: w/ bowl mounting flange

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 51 to 53.

N40·A

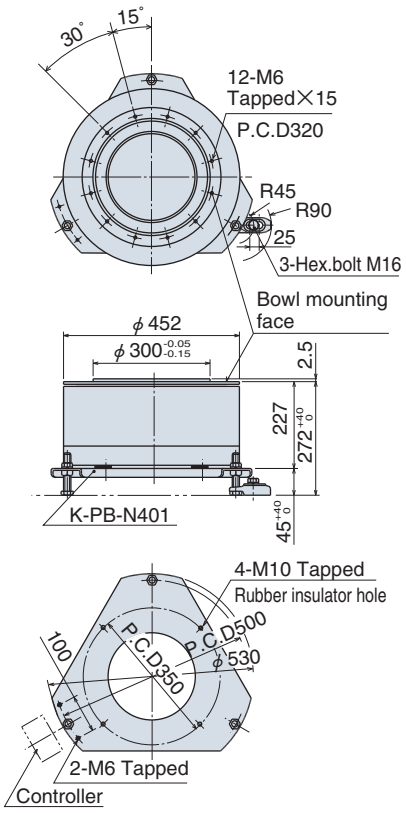
NTN parts feeder

N series

K - N 40 R A M 2

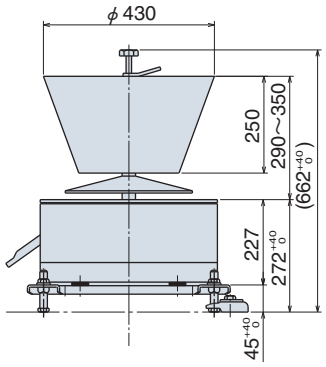
- Voltage and drive system (2: Full wave, 4: Half wave)
- Bowl mounting type
- Design revision code
- Supplying direction (R: clockwise, L: counterclockwise)
- Size
- Model

K-N40$^{R}_{L}$AM$^{2}_{4}$

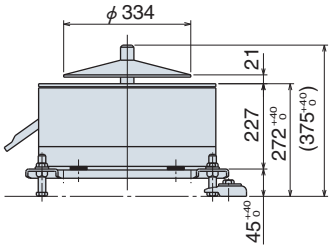


Free set base dimensions (top view)

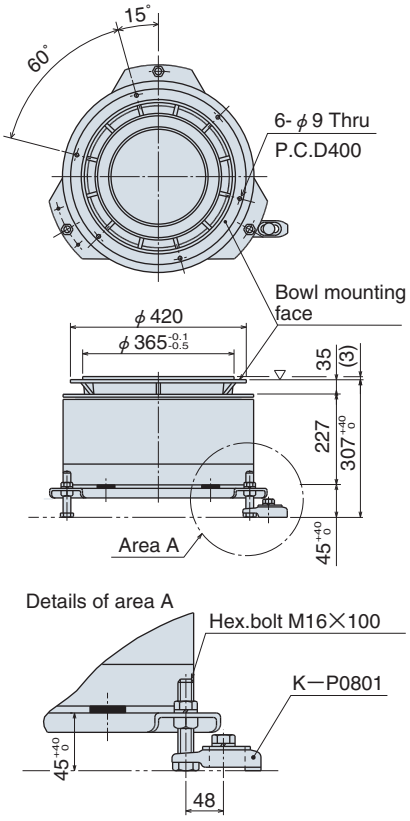
K-N40$^{R}_{L}$AH$^{2}_{4}$



K-N40$^{R}_{L}$AT$^{2}_{4}$



K-N40$^{R}_{L}$AF4



Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ °)	Vibration frequency (Hz)	Mass (kg)	Remarks	
N40·A ❷	K-N40$^{R}_{L}$AM2	200	2.8	K-ECH45	K-PLS2-86×20	15°	90~130 or 45~65	88	w/ free set base	basic type
	K-N40$^{R}_{L}$AM4		3.5		K-PLS2-116×20					
	K-N40$^{R}_{L}$AH2		2.8		K-PLS2-86×20			96		w/ aux. hopper in the bowl
	K-N40$^{R}_{L}$AH4		3.5		K-PLS2-116×20					
	K-N40$^{R}_{L}$AT2		2.8		K-PLS2-86×20			92		w/ isolated bottom
	K-N40$^{R}_{L}$AT4		3.5		K-PLS2-116×20					
	K-N40$^{R}_{L}$AF4							91		w/ bowl mounting flange

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 51 to 52.
❷ 40.A will be supplied with three height adjusting bolts (M16×100) and three clamps (K-P0801).

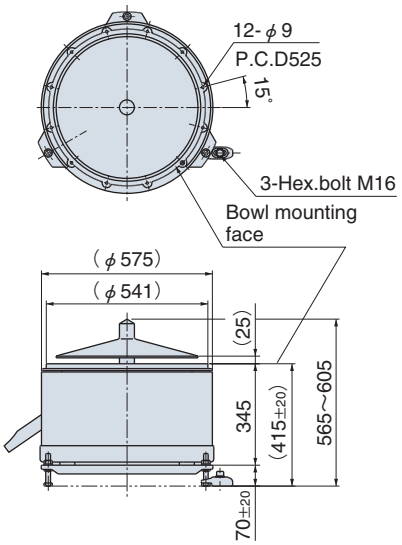
NTN parts feeder

G series

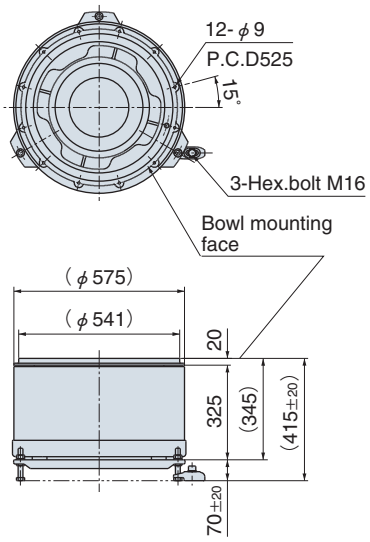
K- G 50 R 1 T 4

- Voltage and drive system
- Bowl mounting type
- Design revision code
- Supplying direction (R: clockwise, L: counterclockwise)
- Size
- Model

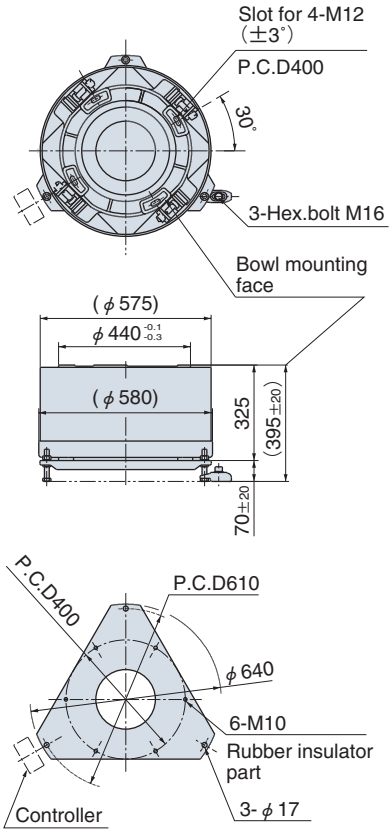
K-G50$^{R}_{L}$1T4



K-G50$^{R}_{L}$1G4



K-G50$^{R}_{L}$1M4



Free set base dimensions (top view)

Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Mass (kg)	Remarks
G50 ❷	K-G50$^{R}_{L}$1T4	200	4	K-ECH45	K-PLS2-180×40	20°	45～65	220	w/ isolated bottom and drain oil chute
	K-G50$^{R}_{L}$1G4							190	w/ mounting adapter
	K-G50$^{R}_{L}$1M4							185	basic type (w/o isolated bottom and adapter)

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 54.
❷ G50 will be supplied with three height adjusting bolts (M16×100) and three clamps (K-P0801).

G63

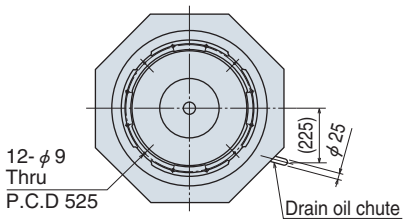
NTN parts feeder

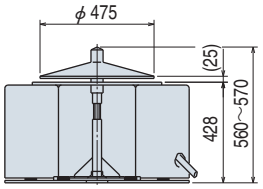
G series

K- G 63 R 2 T 4

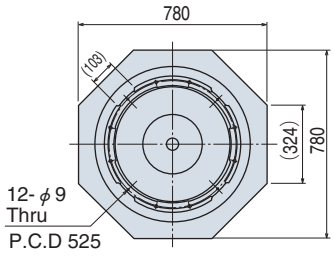
- Voltage and drive system
- Bowl mounting type
- Design revision code
- Supplying direction (R: clockwise, L: counterclockwise)
- Size
- Model

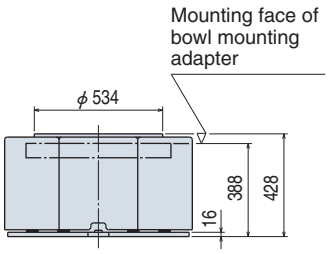
K-G63$^{R}_{L}$2T4



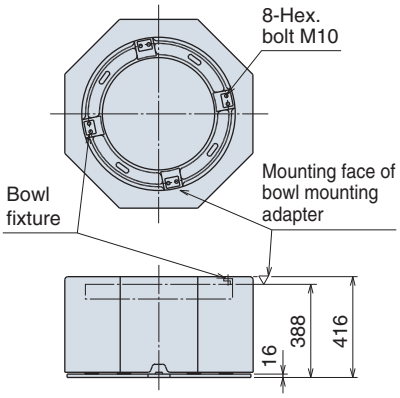


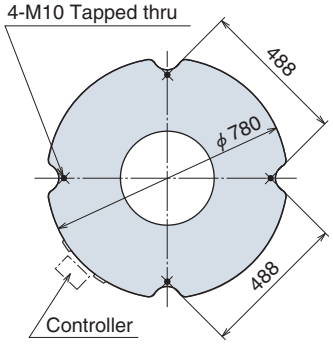
K-G63$^{R}_{L}$2G4





K-G63$^{R}_{L}$2M4





Baseplate dimensions (top view)

Model and size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Mass (kg)	Remarks
G63·2	K-G63$^{R}_{L}$2T4	200	10	K-ECK96	K-PLS2-250×70	20°	45~65	400	w/ isolated bottom and drain oil chute
	K-G63$^{R}_{L}$2G4							370	w/ mounting adapter
	K-G63$^{R}_{L}$2M4							360	basic type (w/o isolated bottom and adapter)

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination table in page 55.

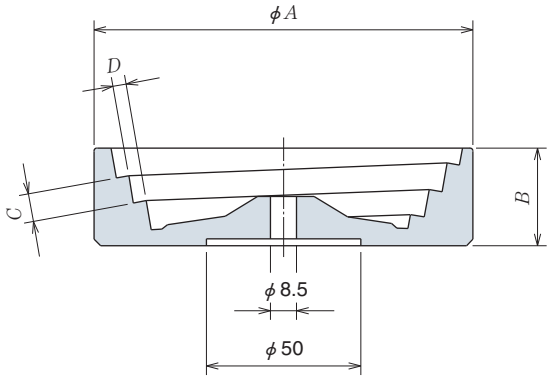
NTN parts feeder

Cascade bowl (1)

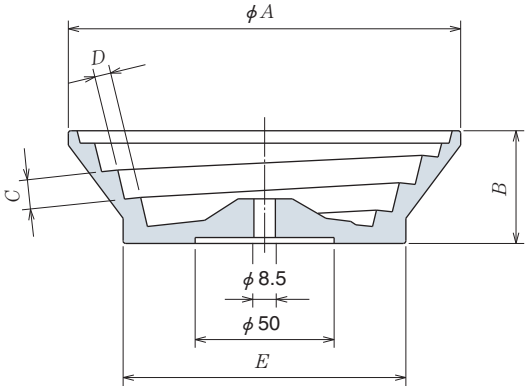
K- B 10 R C 14 01

- 01: Bowl suffix
- 14: Bowl outer dia.
- C: Bowl type (C: cascade, D: dish, Z: straight wall, K: cone)
- R: Supply direction (R: clockwise, L: counterclockwise)
- 10: Size
- B: Bowl type code

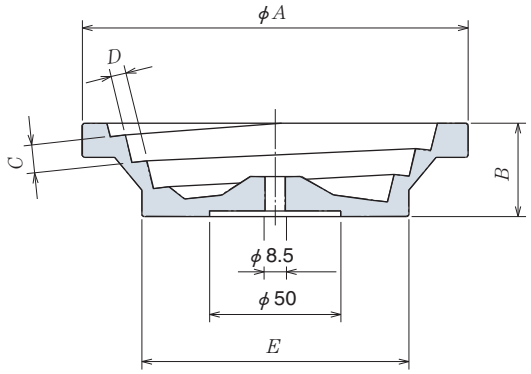
K-B10RC1201



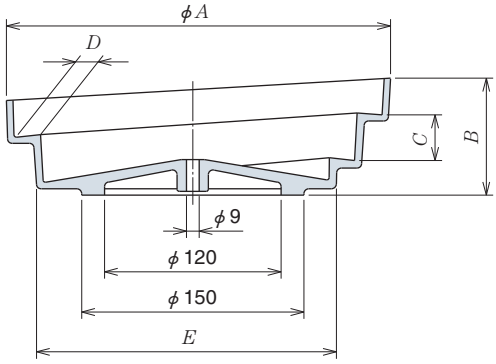
K-B10RC1401



K-B10RC1403,1501,1502,1701
K-B14RC1801,2001



K-B16RC2101
K-B16RC2301
K-B16RC2601



Specifications / Part number	Dimensions (mm) A	B	C	D	E	Turns	Material	Mass (kg)	Standard capacity (ℓ)	Applicable unit, remarks	
K-B10RC1201 ❶	120	30	8.8	4.0	120	3.0	Aℓ alloy	0.47	0.07	K10	
K-B10RC1401 ❶❷	140	40	11.0	6.0	100	3.0	Aℓ alloy	0.38	0.10		
K-B10RC1403 ❶❷	145	35	11.0	6.0	100	3.0	Aℓ alloy	0.48	0.10		w/ outer apron
K-B10RC1501 ❶	150	34	9.3	4.3	116	3.0	Aℓ alloy	0.55	0.09		
K-B10RC1502 ❶❷	150	34	9.2	3.2	116	3.0	Aℓ alloy	0.52	0.09		2-tracks
K-B10RC1701 ❶❷	175	40	13.6	7.8	138	2.3	Aℓ alloy	1.00	0.12		For conventional Part No. K10-A
K-B14RC1801 ❶	188	32	12.0	6.0	120	1.5	Aℓ alloy	1.20	0.15	HF14	For high-frequency
K-B14RC2001 ❶	200	65	18.0	10.0	120	3.0	Aℓ alloy	1.80	0.22	K14	
K-B16RC2101 ❷	225	56	18.0	4.3	170	2.0	Aℓ casting	1.10	0.22	K16	2-tracks
K-B16RC2301	230	80	20.0	11.0	162	3.0	Aℓ casting	0.90	0.30		
K-B16RC2601	260	77	30.0	19.0	202	1.5	Aℓ casting	1.70	0.40		

❶ The Al alloy bowl is precision machined.
❷ Part Nos. C1401, C1403, C1502, C1701 and C2101 are manufactured on special order.

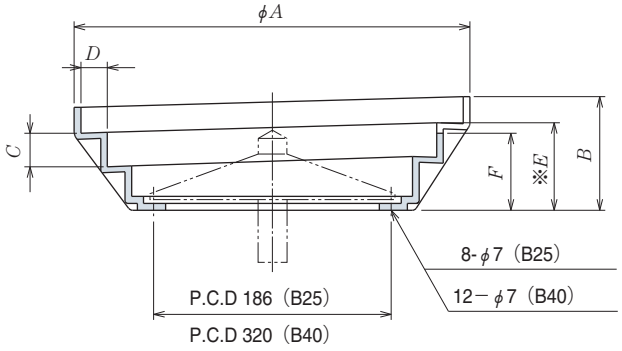
NTN parts feeder

Cascade bowl (2)

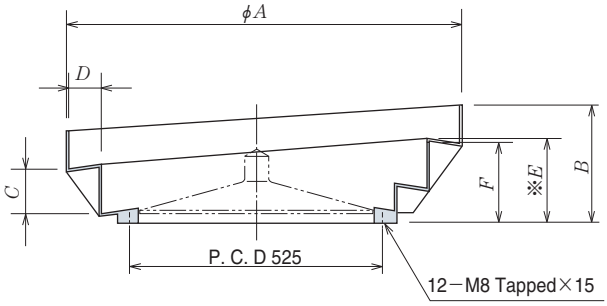
K- B 25 R C D 39 1

- 1 — Design revision code
- 39 — Bowl outer dia. (rounded off to cm)
- D — Bowl bottom type (D: no-bottom(isolated bottom type), F: integrated bottom, B: w/ fixed bottom)
- C — Bowl type (C: cascade, D: dish, Z: straight wall, K: cone)
- R — Supply direction (R: clockwise, L: counterclockwise)
- 25 — Size
- B — Bowl unit code

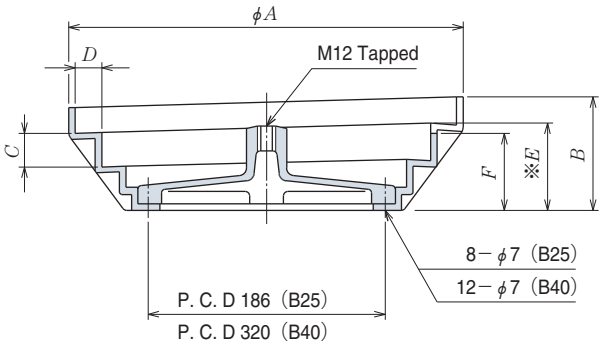
K-B25RCD··· K-B40RCD···



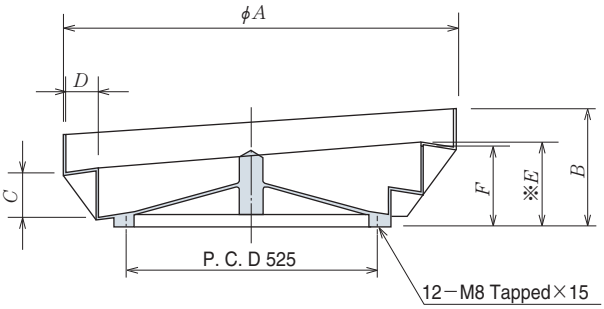
K-B63RCD83



K-B25RCB··· K-B40RCB···



K-B63RCB83



※Height of outlet

Part number \ Specifications	Dimensions (mm) A	B	C	D	E	F	Turns	Material	Mass (kg)	Approx. capacity up to the first step (ℓ)	Applicable unit, remarks	
K-B25RCB33	330	105	32	20	82	73	2.0	Al casting	1.6	1.5	N25	
K-B25RCB39	396	129	40	32	98	89	2.0	Al casting	2.5	2.5		
K-B25RCB391	396	151	40 | 67❶	32	121	92	2.0	Al casting	2.5	2.5		Steep steps
K-B40RCB54	540	162	50	32	120	111	2.0	Al casting	4.5	5	N40	
K-B40RCB58	588	210	60 | 87❶	40	160	130	2.0	Al casting	8.0	7		Steep steps
K-B40RCB64	640	203	64	50	148	139	2.0	Al casting	10.0	9		
K-B40RCB641	640	241	64 | 112❶	50	186	141	2.0	Al casting	10.0	9		Steep steps
K-B63RCB83	830	230	90	68	160	140	1.5	Al casting	22.0	20	G50, G63·2	

❶ The lead of the last turn of the track.

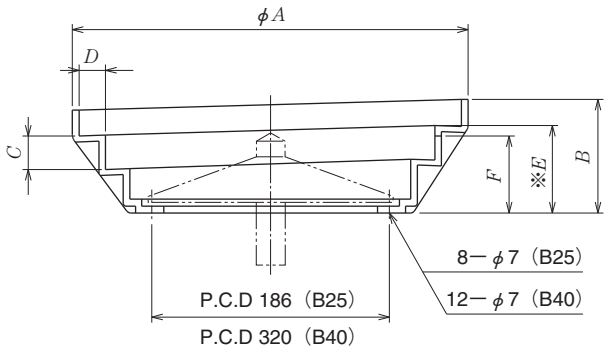
NTN parts feeder

Cascade bowl (3)

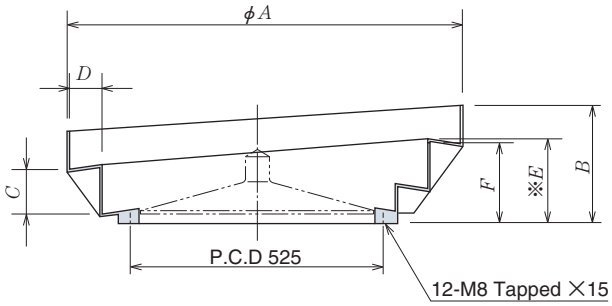
K- B 25 R S D 39 1

- 1 — Design revision code
- 39 — Bowl outer dia. (to nearest cm)
- D — Bowl bottom type (D: no-bottom (isolated bottom), F: integrated bottom, B: w/ fixed bottom)
- S — Bowl type (C: cascade, D: dish, Z: straight wall, K: cone, S: stainless steel cascade)
- R — Supply direction (R: clockwise, L: counterclockwise)
- 25 — Size
- B — Bowl Code

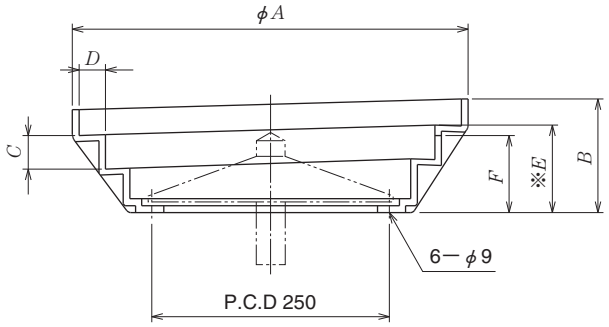
K-B25$^{R}_{L}$SD···
K-B40$^{R}_{L}$SD···



K-B63$^{R}_{L}$SD83



K-B32$^{R}_{L}$SD491



※Height of outlet

Specifications / Part number	Dimensions (mm) A	B	C	D	E	F	Turns	Material	Mass (kg)	Approx. capacity up to the first step (ℓ)	Applicable unit, remarks	
K-B25$^{R}_{L}$SD39	390	137	40	32	99	—	2.0	SUS	4.3	2.5	N25	
K-B25$^{R}_{L}$SD391	390	157	40 | 67❶	32	119	97	2.0	SUS	4.4	2.5	N25	Steep steps
K-B32$^{R}_{L}$SD491	496	182	55	36	136	127	2.0	SUS	10.2	3.2	N32	
K-B40$^{R}_{L}$SD54	538	168	50	32	121	—	2.0	SUS	10.0	5	N40	
K-B40$^{R}_{L}$SD58	582	217	60 | 87❶	40	161	137	2.0	SUS	12.0	7	N40	Steep steps
K-B40$^{R}_{L}$SD64	636	210	64	50	149	—	2.0	SUS	14.0	9	N40	
K-B40$^{R}_{L}$SD641❷	636	246	64 | 112❶	50	185	146	2.0	SUS	15.2	9	N40	Steep steps
K-B63$^{R}_{L}$SD83❷	828	227	90	68	160	—	1.5	SUS	30.1	20	G63·2	

❶ The lead of the last turn of the track.
❷ Part Nos. SD641 and SD83 are manufactured on special order.

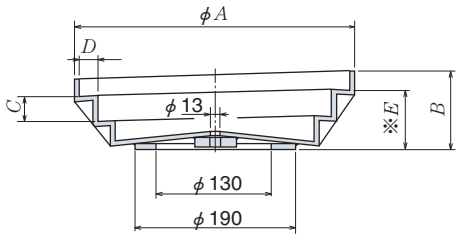
NTN parts feeder

Cascade bowl (4)

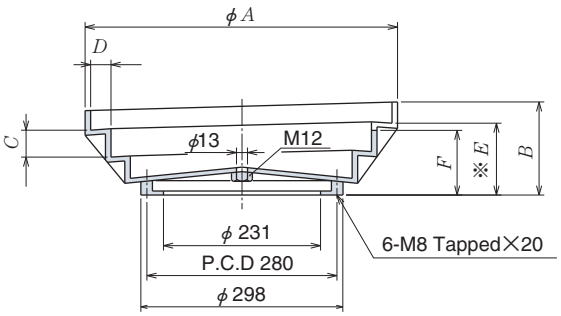
K- B 25 R S F 39 1

- 1 — Design revision code
- 39 — Bowl outer dia. (to nearest cm)
- F — Bowl bottom type (D: no-bottom (isolated bottom type), F: integrated bottom, B: w/ fixed bottom)
- S — Bowl type (C: cascade, D: dish, Z: straight wall, K: cone, S: stainless steel cascade)
- R — Supply direction (R: clockwise, L: counterclockwise)
- 25 — Size
- B — Bowl code

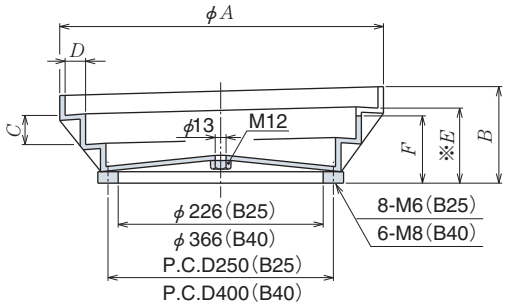
K-B20RLS3201



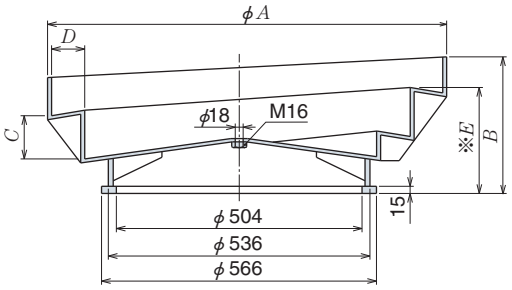
K-B32RLSF491



K-B25RLSF···
K-B40RLSF···



K-B63RLSF83



※Height of outlet

Part number \ Specifications	Dimensions (mm) A	B	C	D	E	F	Turns	Material	Mass (kg)	Approx. capacity up to the first step (ℓ)	Applicable unit, remarks	
K-B20RLS3201	320	108	34	25	73	—	2.0	SUS	3.1	1.3	K20	
K-B25RLSF39	390	131	40	32	93	—	2.0	SUS	4.7	2.5	N25	
K-B25RLSF391	390	151	40 67❶	32	113	91	2.0	SUS	4.8	2.5	N25	Steep steps
K-B32RLSF491	496	150	47	36	106	—	2.0	SUS	12.0	3.2	N32	
K-B40RLSF54	538	165	50	32	118	—	2.0	SUS	12.5	5	N40	
K-B40RLSF58	582	212	60 87❶	40	156	132	2.0	SUS	14.5	7	N40	Steep steps
K-B40RLSF64	636	207	64	50	146	—	2.0	SUS	16.0	9	N40	
K-B40RLSF641	636	243	64 112❶	50	182	135	2.0	SUS	17.0	9	N40	Steep steps
K-B63RLSF83	828	277	90	68	210	—	1.5	SUS	42.1	20	G63·2	

❶ The lead of the last turn of the track.
❷ Part Nos. SF641 and SF83 are manufactured on special order.

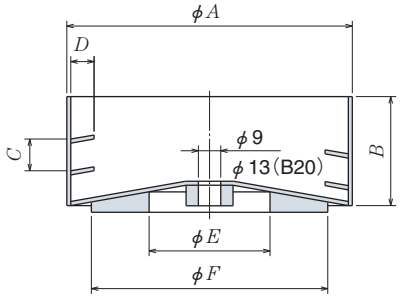
NTN parts feeder

Straight wall bowl (1)

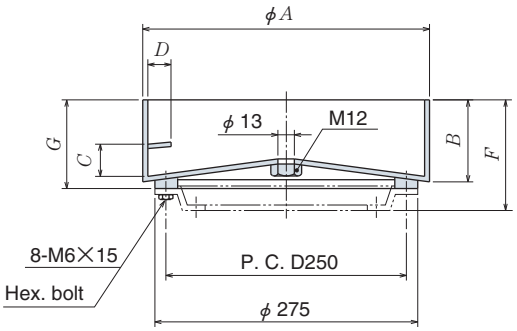
K- B 25 R Z F 30 1

- 1 — Design revision code
- 30 — Bowl outer dia. (to nearest cm)
- F — Bowl bottom (D: no-bottom (isolated bottom type), F: integrated bottom, B: w/ fixed bottom)
- Z — Bowl type (C: cascade, D: dish, Z: straight wall, K: cone)
- R — Supply direction (R: clockwise, L: counter-clockwise)
- 25 — Size
- B — Bowl size code

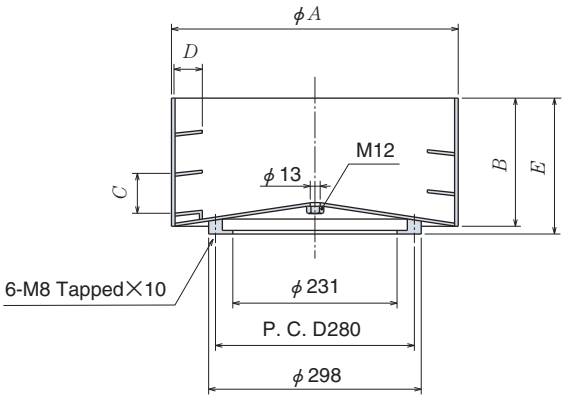
K-B10$^{R}_{L}$Z1201
K-B14$^{R}_{L}$Z2001
K-B16$^{R}_{L}$Z···
K-B20$^{R}_{L}$Z···



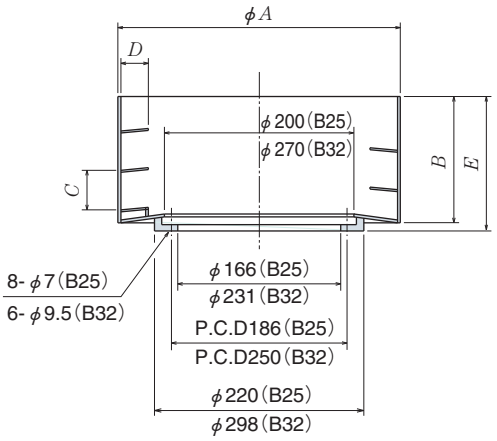
K-B25$^{R}_{L}$ZF···



K-B32$^{R}_{L}$ZF401



K-B25$^{R}_{L}$ZD···
K-B32$^{R}_{L}$ZD401



Part number \ Specifications	Dimensions (mm) A	B	C	D	E	F	G	Turns	Material	Mass (kg)	Standard capacity (ℓ)	Applicable unit, remarks
K-B10$^{R}_{L}$Z1201	120	45	13	10	50	100	—	2.0	SUS	(0.7)	0.07	K10
K-B14$^{R}_{L}$Z2001	200	55	23	20	80	130	—	1.5	SUS	1.6	0.35	K14
K-B16$^{R}_{L}$Z2301	234	65	28	20	80	150	—	1.5	SUS	2.2	0.45	K16
K-B16$^{R}_{L}$Z2302❶	234	55	20	15	80	150	—	2.0	SUS	2.0	0.40	K16
K-B16$^{R}_{L}$Z2501	250	65	30	20	80	150	—	1.5	SUS	2.3	0.60	K16
K-B20$^{R}_{L}$Z2801	280	75	33	25	130	190	—	1.5	SUS	3.1	1.20	K20
K-B20$^{R}_{L}$Z3003	300	85	36	25	130	200	—	1.5	SUS	3.9	1.70	K20
K-B25$^{R}_{L}$Z$^{D}_{F}$30❶	304	85	36	25	95	116	91	1.5	SUS	4.8	1.80	N25
K-B25$^{R}_{L}$Z$^{D}_{F}$301❶	304	85	30	20	95	116	91	2.0	SUS	4.9	1.60	N25 Low lead, 2-tracks
K-B25$^{R}_{L}$Z$^{D}_{F}$302❶	304	110	36	25	120	141	116	2.0	SUS	5.4	1.80	N25 Standard lead, 2-tracks
K-B25$^{R}_{L}$Z$^{D}_{F}$35	354	100	42	30	106	128	103	1.5	SUS	6.0	2.80	N25
K-B25$^{R}_{L}$Z$^{D}_{F}$351❶	354	100	35	30	106	128	103	2.0	SUS	6.1	2.20	N25 Low lead, 2-tracks
K-B25$^{R}_{L}$Z$^{D}_{F}$352	354	125	42	30	131	153	128	2.0	SUS	6.7	2.80	N25 Standard lead, 2-tracks
K-B25$^{R}_{L}$ZD354❶	354	135	42	30	141	—	—	2.5	SUS	6.2	2.80	N25 Standard lead, 2.5-tracks
K-B32$^{R}_{L}$ZD401	400	140	48	40	148	—	—	2.0	SUS	10.0	4.00	N32
K-B32$^{R}_{L}$ZF401					143							N32

❶ Part Nos. Z2302, Z$^{D}_{F}$30, Z$^{D}_{F}$301, Z$^{D}_{F}$302, Z$^{D}_{F}$351 and ZD354 are manufactured on special order.

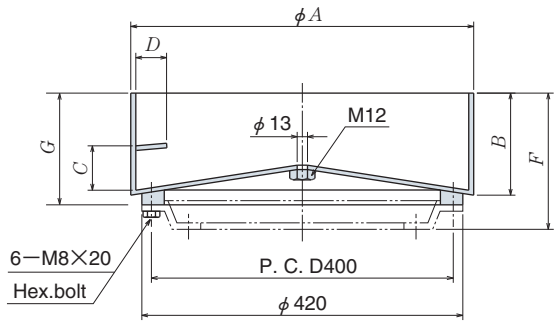
NTN parts feeder

Straight wall bowl (2)

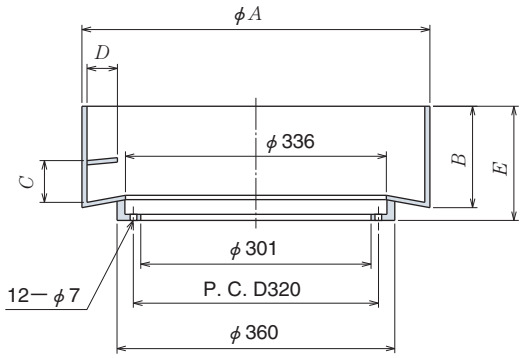
K- B 40 R Z F 45 2

- Design revision code
- Bowl outer dia. (to nearest cm)
- Bowl bottom (D: no-bottom (isolated bottom type), F: integrated bottom, B: w/fixed bottom)
- Bowl type (C: cascade, D: dish, Z: straight wall, K: cone)
- Supply direction (R: clockwise, L: counterclockwise)
- Size
- Bowl code

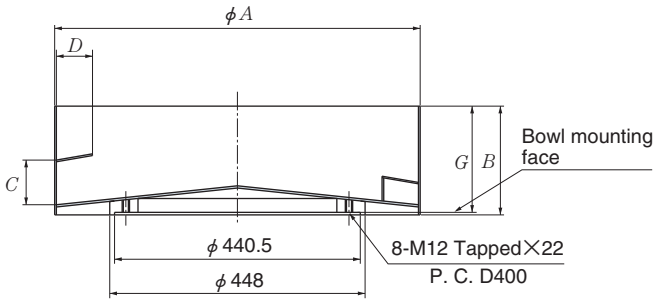
K-B40 R/L ZF···



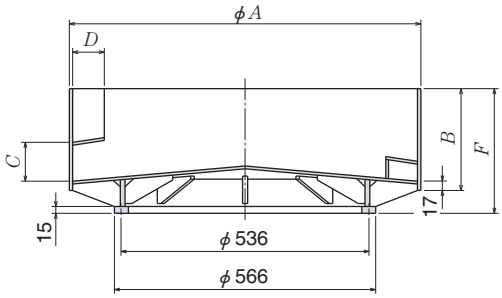
K-B40 R/L ZD···



K-B50 R/L ZF651



K-B63 R/L ZF75



Specifications / Part number	Dimensions (mm) A	B	C	D	E	F	G	Turns	Material	Mass (kg)	Standard capacity (ℓ)	Applicable unit, remarks	
K-B40 R/L ZP45	454	130	56	40	139	175	140	1.5	SUS	12.0	5.0	N40	
K-B40 R/L ZF451❶	454	130	46	40	—	175	140	2.0	SUS	12.2	4.0		Low lead, 2-tracks
K-B40 R/L ZF452❶	454	160	56	40	—	205	170	2.0	SUS	13.0	5.0		Standard lead, 2-tracks
K-B40 R/L ZP50	504	140	62	45	145	182	147	1.5	SUS	13.0	7.0		
K-B40 R/L ZF501❶	504	140	52	45	—	182	147	2.0	SUS	13.2	6.0		Low lead, 2-tracks
K-B40 R/L ZF502❶	504	175	62	45	—	217	182	2.0	SUS	14.0	7.0		Standard lead, 2-tracks
K-B40 R/L ZD503❶	504	195	62	45	200	—	—	2.5	SUS	13.0	7.0		Standard lead, 2.5-tracks
K-B40 R/L ZF55	554	150	68	50	—	188	153	1.5	SUS	14.0	10.0		
K-B40 R/L ZF60❶	604	170	74	55	—	204	169	1.5	SUS	16.0	13.0		
K-B50 R/L ZF651❶	655	193	80	65	—	—	190	1.5	SUS	30.0	17.0	G50·1	
K-B63 R/L ZF75❶	755	220	85	70	—	270	—	1.5	SUS	48.0	25.0	G63·2	

❶ Part Nos. ZF451, ZF452, ZF501, ZF502, ZD503, ZF60, ZF651 and ZF75 are manufactured on special order.

NTN parts feeder

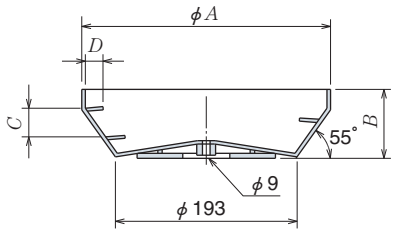
Cone bowl

Manufactured only on special order.

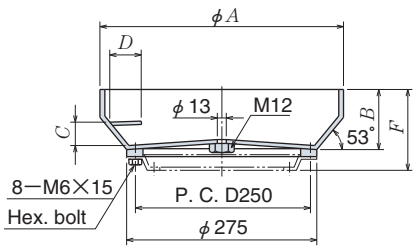
K- B 25 R K D 35

- 35: Bowl outer dia. (to nearest cm)
- D: Bowl bottom (D: no-bottom (isolated bottom type), F: integrated bottom, B: w/ fixed bottom)
- K: Bowl type (C: cascade, D: dish, Z: straight wall, K: cone)
- R: Supply direction (R: clockwise, L: counterclockwise)
- 25: Size
- B: Bowl code

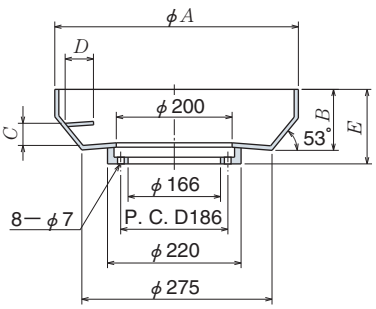
K-B16RLK2601



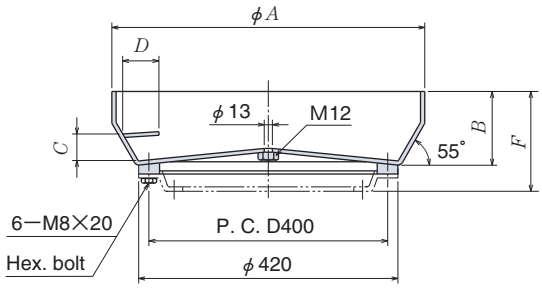
K-B25RLKF35



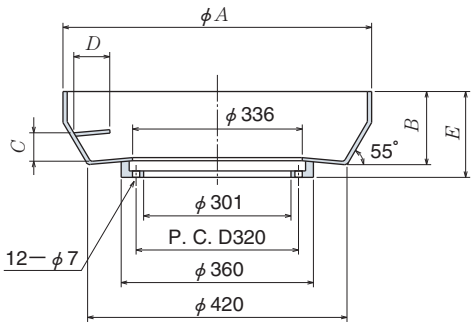
K-B25RLKD35



K-B40RLKF55



K-B40RLKD55



Part number \ Specifications	Dimensions (mm) A	B	C	D	E	F	Turns	Material	Mass (kg)	Standard capacity (ℓ)	Applicable unit, remarks
K-B16RLK2601❶	260	75	30	20	—	—	1.5	SUS	2.0	0.6	K16
K-B25RLKF35❶	355	90	40	30	—	123	1.5	SUS	4.5	1.5	N25・F
K-B25RLKD35❶	355	90	40	30	102	—	1.5	SUS	2.5	1.5	N25
K-B40RLKF55❶	555	135	50	35	—	182	1.5	SUS	10.0	5.0	N40・F
K-B40RLKD55❶	555	135	50	35	146	—	1.5	SUS	7.0	5.0	N40

❶ Manufactured only on special order.

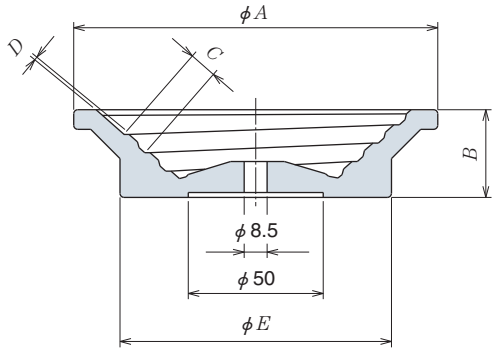
NTN parts feeder

Dish bowl

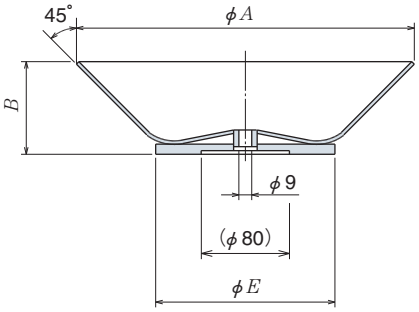
K- B 40 □ D F 64 1

- 1 — Design revision code
- 64 — Bowl outer dia. (to nearest cm)
- F — Bowl bottom (D: no-bottom (isolated bottom type), F: integrated bottom, B: w/ fixed bottom)
- D — Bowl type (C: cascade, D: dish, Z: straight wall, K: cone)
- □ — Supply direction (R: clockwise, L: counterclockwise)
- 40 — Size
- B — Bowl code

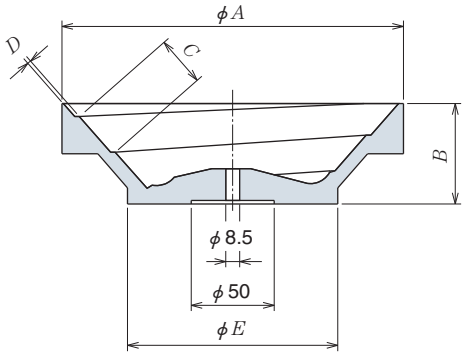
K-B10 R/L D1301,1402,1701



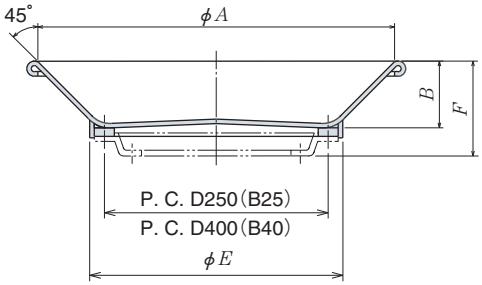
K-B16D2801



K-B10 R/L D2001
K-B14 R/L D2002



K-B25DF42
K-B40DF64,641



Specifications / Part number	Dimensions (mm) A	B	C	D	E	F	Turns	Material	Mass (kg)	Standard capacity (ℓ)	Applicable unit, remarks	
K-B10 R/L D1301 ❶	134	32	10	1.0	100	—	3.0	Aℓ alloy	0.44	0.06	K10	
K-B10 R/L D1402 ❶❷	148	38	12	1.0	110	—	2.7	Aℓ alloy	0.49	0.08		w/ overhang
K-B10 R/L D1701 ❶❷	178	60	14	3.7	100	—	5.0	Aℓ alloy	0.84	0.20		For K-10·A
K-B10 R/L D2001 ❶❷	204	60	30	1.5	124	—	2.1	Aℓ alloy	1.3	0.20		
K-B14 R/L D2002 ❶	204	60	31	1.5	127	—	2.0	Aℓ alloy	1.5	0.20	K14	
K-B16D2801	280	71	—	—	150	—	—	SUS	1.7	0.35	K16	
K-B25DF42 ❷	420	80	—	—	281	113	—	SUS	4.0	1.20	N25·F	
K-B40DF64 ❷	640	97	—	—	446	142	—	SUS	13.0	3.50	N40·F	
K-B40DF641 ❷	640	150	—	—	466	195	—	SUS	18.0	5.00		

❶ Aluminum alloy bowl is precision machined.
Since the standard stainless steel dish bowl does not have any tracks, the R/L code is not required.
❷ Part Nos. D1402, D1701, D2001, D2901, DF42 , DF64 and DF641 are manufactured on special order.

S05,08,10

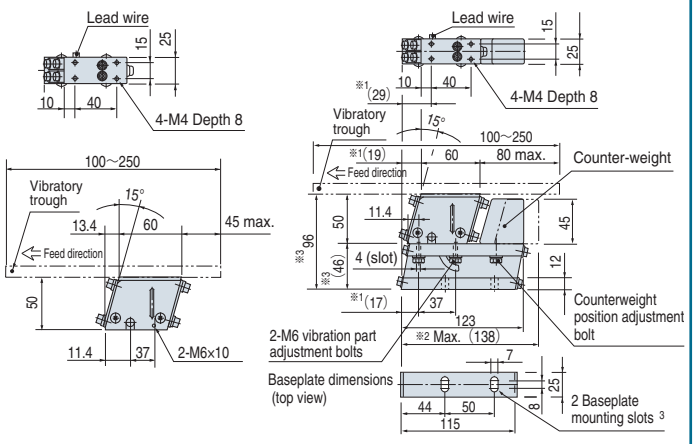
NTN parts feeder

S series

K- S 10 B 1

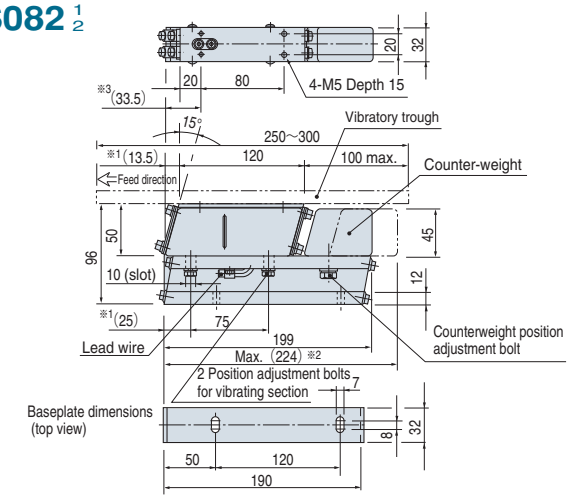
- Voltage and drive system
- Design revision code
- Size
- Model

K-S05A ¹₂ K-S051 ¹₂



※1: This dimension can be adjusted 2 mm along the feed direction by loosening and retightening the two position adjustment bolts securing the vibrating section.
※2: This dimension can be adjusted with the counterweight position adjustment bolt.
※3: The height of the new design is 4 mm less than that of the conventional optional insulated mount (K-UH001). Regarding the two baseplate mounting slots, the position of the downstream slot relative to the chute mounting screws (4-M4) remains unchanged while the position of the upstream side slot in the new design differs from that of the conventional mount (K-UH001).

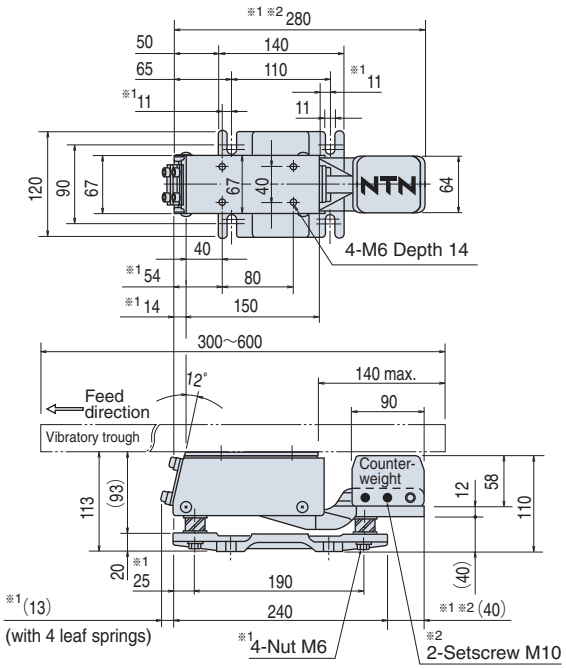
K-S082 ¹₂



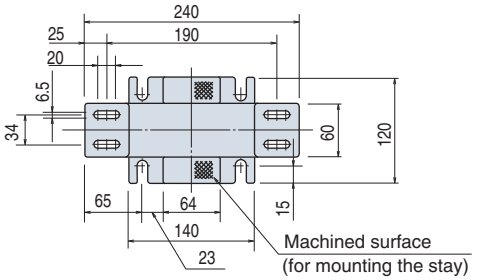
※1: This dimension can be adjusted 2 mm along the feed direction by loosening and retightening the two position adjustment bolts securing the vibrating section.
※2: This dimension can be adjusted with the counterweight position adjustment bolt.

K-S10B ¹₂,S10C ¹₂

※1 Loosening the four M6 nuts allows dimension ※1 to be adjusted up to 10 mm in the feed direction.
※2 Loosening the two M10 setscrews allows the counterweight to be adjusted. It can be moved up to 20 mm in the forward direction and up to 30 mm in the rearward direction relative to the position shown here.



Baseplate dimensions (top view)



※Use of vibratory trough mount (K-T101) is recommended.

Model, size	Part number	Rated voltage (V)	Rated current (A)	Applicable ❶ controller	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Vibratory trough		Mass (kg)	Remarks
								Length (mm)	Mass (kg)		
S05	K-S0511	100	0.10	K-ECF25	K-PLS2-35×5	15°	90~130	250	0.4	1.3	Insulated type
	K-S0512	200	0.05								
	K-S05A1	100	0.10							0.4	Fixed type
	K-S05A2	200	0.05								
S08	K-S0821	100	0.20					300	1.2	2.4	Insulated type
	K-S0822	200	0.10								
S10	K-S10B1	100	0.40	K-ECF25	K-PLS4-40×6	12°		600	2.5:50Hz 2.0:60Hz	7	w/ baseplate
	K-S10B2	200	0.20								
	K-S10C1	100	0.40							5.5	w/o baseplate
	K-S10C2	200	0.20								

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination list.

S20,30

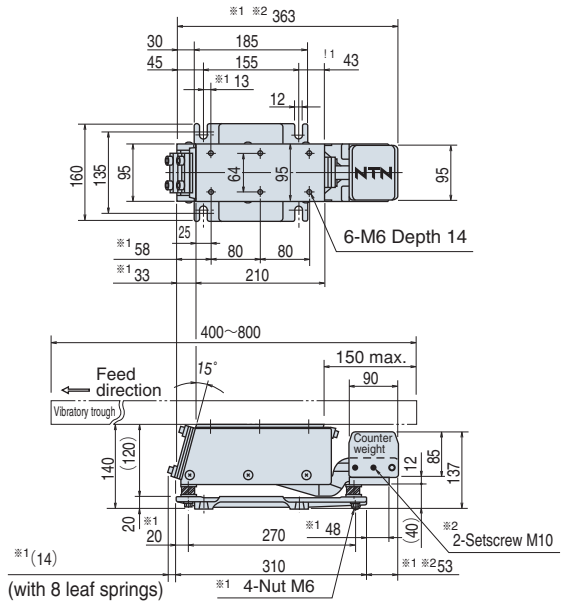
NTN parts feeder

S series

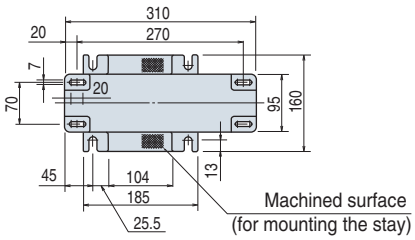
K- S 20 C 2

- Voltage and drive system
- Design revision code
- Size
- Model

K-S20B½,S20C½



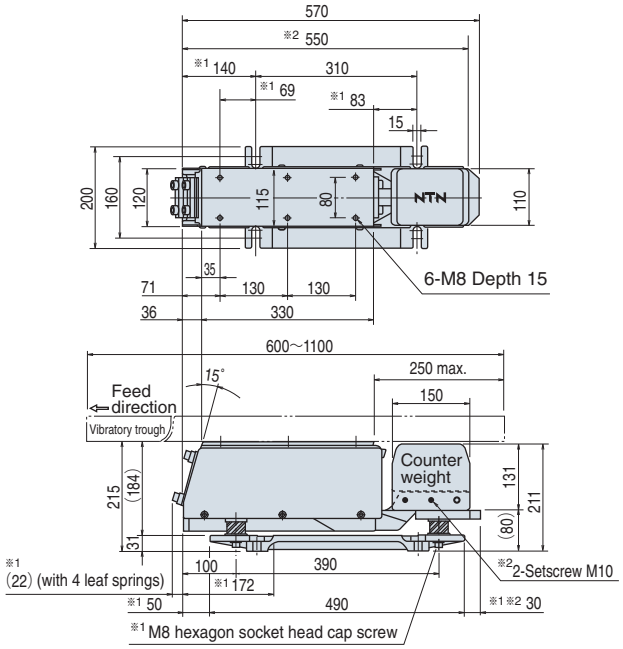
Base plate dimensions (top view)



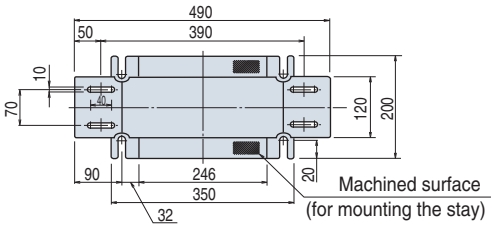
※1 Loosening the four M6 nuts allows dimension ※1 to be adjusted up to 10 mm in the feed direction.

※2 Loosening the two M10 setscrews allows the counterweight to be adjusted. It can be moved up to 10 mm in the forward direction and up to 30 mm in the rearward direction relative to the position shown here.

K-S30B4,S30C4



Base plate dimensions (top view)



※1 Loosening the four M8 hex. bolts allows dimension ※1 to be adjusted up to 20 mm in the feed direction.

※2 Loosening the two M10 setscrews allows the counterweight to be adjusted. It can be moved up to 10 mm in the forward direction and up to 65 mm in the rearward direction relative to the position shown here.

※Use of a vibratory trough mount (K-T201…for S20, K-T301…for S30) is recommended.

Model, size	Part number	Rated voltage (V)	Rated current (A)	Applicable controller ❶	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Vibratory trough		Mass (kg)	Remarks
								Length (mm)	Mass (kg)		
S20	K-S20B1	100	1.0	K-ECF25	K-PLS4-70×12	15°	90～130	800	5.0:(50Hz) 3.5:(60Hz)	14	w/ baseplate
	K-S20B2	200	0.5								
	K-S20C1	100	1.0							11.5	w/o baseplate
	K-S20C2	200	0.5								
S30	K-S30B4	200	0.9		K-PLS4-86×15		45～65	1100	15:(60Hz)	41	w/ baseplate
	K-S30C4									33	w/o baseplate

❶ The applicable controllers in the list above are typical ones. For other applicable controllers, refer to the standard series combination list.

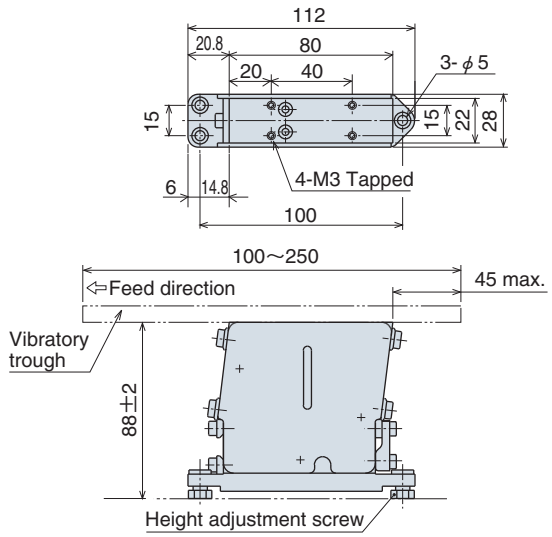
HS05,07,L20

NTN parts feeder

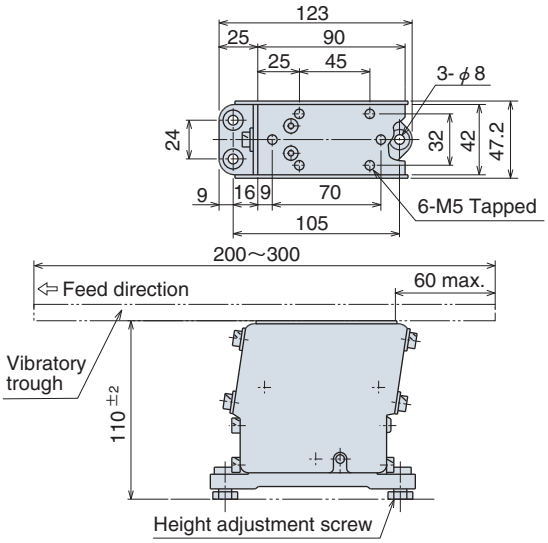
HS series L type

K- HS 05 2 1
- Voltage and drive system
- Design revision code
- Size
- Model

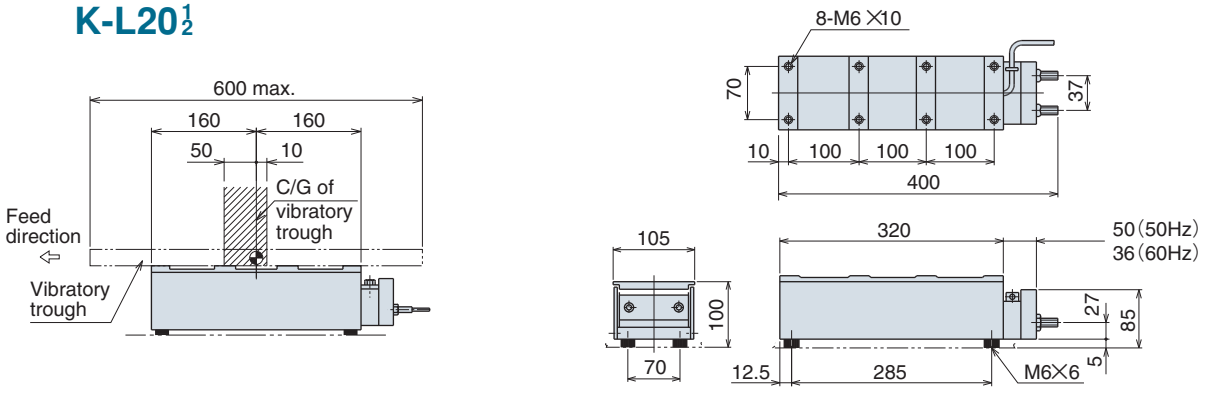
K-HS0521 (high-frequency)



K-HS0711 (high-frequency)



K-L20$^{1}_{2}$



Model, size	Part number	Rated voltage (V)	Rated current (A)	Applicable ❶ controller	Applicable leaf spring	Leaf spring angle (θ°)	Vibration frequency (Hz)	Vibratory trough		Mass (kg)	Remarks
								Length (mm)	Mass (kg)		
HS05	K-HS0521	100	0.16	K-ECF25	K-PLS2-35×9	—	200～300	250	0.3	1.1	w/ isolation mount using leaf springs
HS07	K-HS0711	100	0.5		K-PLS4-40×6	10°		300	0.6	2.5	
L20	K-L201	100	1.0		K-PLS2-67×15	0°	90～130	600	5.0:(50Hz) 4.0:(60Hz)	8.0	Rubber insulator
	K-L202	200	0.5								

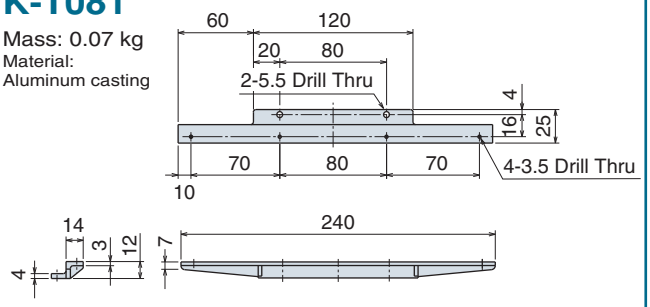
❶ The applicable controllers in the list above are typical examples. For other applicable controllers, refer to the standard series combination table.

Vibratory trough mount

K- T 10 1
- Vibratory trough type
- Size
- Vibratory trough code

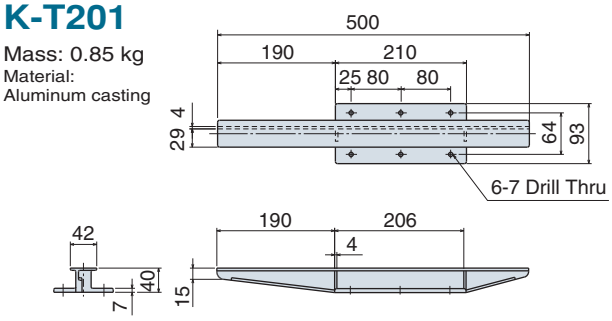
K-T081

Mass: 0.07 kg
Material:
Aluminum casting



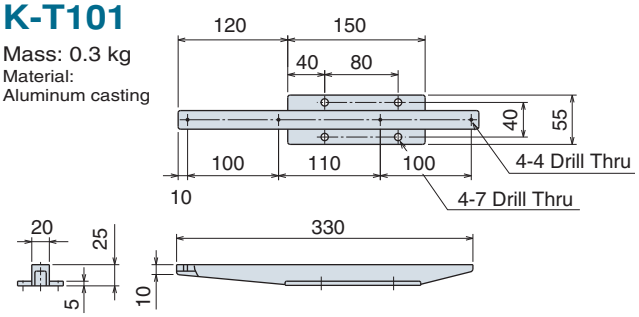
K-T201

Mass: 0.85 kg
Material:
Aluminum casting



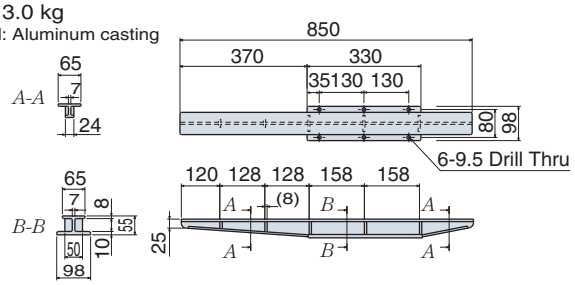
K-T101

Mass: 0.3 kg
Material:
Aluminum casting



K-T301

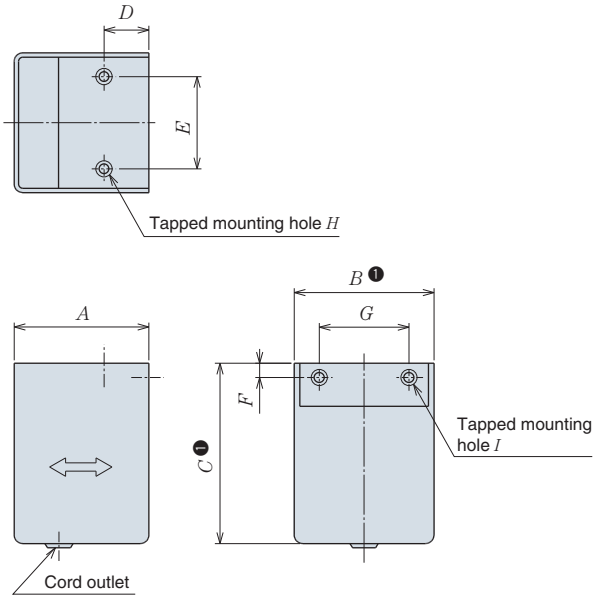
Mass: 3.0 kg
Material: Aluminum casting



Auxiliary vibrator

K- M 05 1
- Voltage/drive system
- Size
- Type code

An auxiliary vibrator, to be installed on the back of the vibratory trough, generates minute vibrations to help those pieces that are prone to jam on the vibratory trough to feed smoothly.
The auxiliary vibrator is also handy for various other vibration applications.



Specifications / Part number	Dimensions (mm) A	B ❶	C ❶	D	E	F	G	H	I	Approx. mass of vibratory trough (kg)	Applicable controller	Rated voltage (V)	Rated current (A)
K-M05[1/2]	72	68	93	27	22	—	—	2-M6×10	—	1.2	K-EGA57	200 (100)	0.2 (0.4)
K-M10[1/2]	90	92	120	30	60	9	60	2-M8×15	2-M8×15	3.7			0.5 (1.0)

❶ Does not include dimensions of cover mounting screws.

V7,V01～12

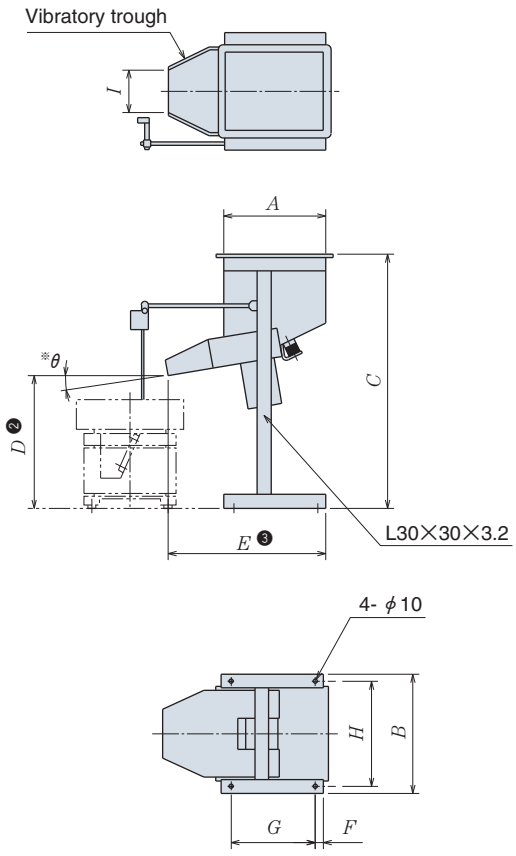
NTN parts feeder

Detached hopper

K- V 01 S 4

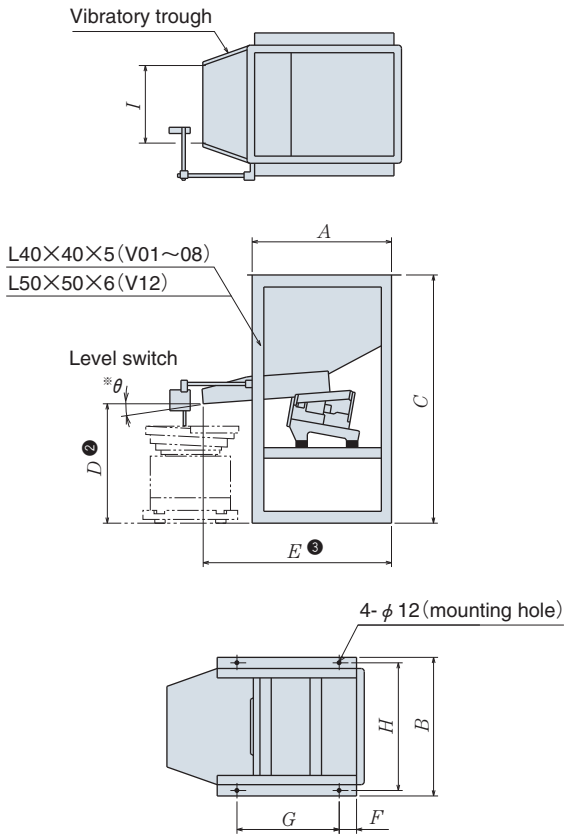
- Voltage and drive system ❶
- Tank material (S: stainless steel)
- Storage capacity
- Type code

K-V7S2¾



※The tilt angle of the vibratory trough is adjustable within the range 0˚-10˚.

K-V01S¾～V12S4



※The tilt angle of the vibratory trough is adjustable within the range 0˚-10˚ (V03, 04, 06, 08) or 5˚-15˚ (V01, 12).

Specifications / Part number	Dimensions (mm) A	B	C	D ❷	E ❸	F	G	H	I	Tank capacity (ℓ)	Max.work input mass (kg)	Approx. mass (kg)	Rated voltage (V)	Rated current (A)	Tank material	Vibratory trough material
K-V7S2¾	220	260	514	286	333	20	180	240	100	7	20	12	200 (100)	0.2(0.4)	SUS❹	SUS
K-V01S¾	350	385	735	435	542	40	270	350	185	15	50	55		1.0 (3.2)		Aℓ ❹ casting (as cast)
K-V03S¾	400	435	735	418	570	50	300	400	225	30	100	65				
K-V03S1¾	400	435	735	417	670	50	300	400	225	30	100	70				
K-V04S¾ ❺	400	435	860	418	570	50	300	400	225	45	100	68				
K-V04S1¾ ❺	400	435	860	417	670	50	300	400	225	45	100	73				
K-V06S¾	500	505	1 017	574	721	50	400	470	270	60	120	80				
K-V06S1¾	500	505	1 017	574	771	50	400	470	270	60	120	85				
K-V08S¾ ❺	500	505	1 127	574	721	50	400	470	270	80	120	84				
K-V08S1¾ ❺	500	505	1 127	574	771	50	400	470	270	80	120	90				
K-V12S4 ❺	640	635	1 186	596	852	70	500	590	380	120	120	200	200	2.0		

❶ The code "4" of the voltage/drive system in the part number means 200 V, full wave, and "3" means 100 V, half wave. The 100 V variants of V03 through V08 are available by special order.
❷ The dimension D is corresponds to the vibratory trough set to horizontal position.
❸ The dimension E will vary according to the adjusted angle of the vibratory trough. The quoted dimension is the minimum value.
❹ Polyurethane-coated tanks and vibratory troughs are available upon request.
❺ Part Nos. V04, V08 and V12 are manufactured on special order.
❻ Applicable controllers: K-EGA57, variable voltage variable frequency small controller (installed separately)

SV1,3,01,03,06

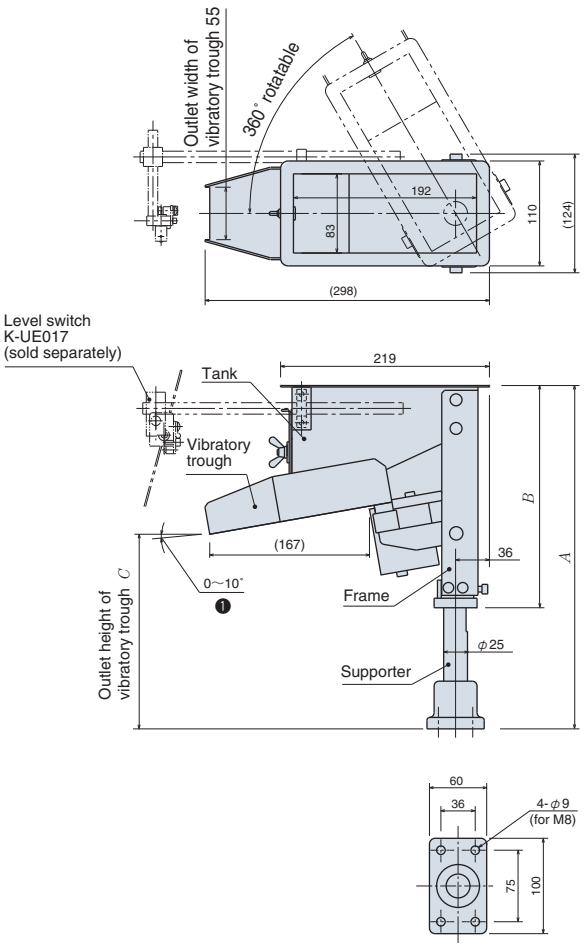
NTN parts feeder

Space-saving hopper

K- SV 01 S 4

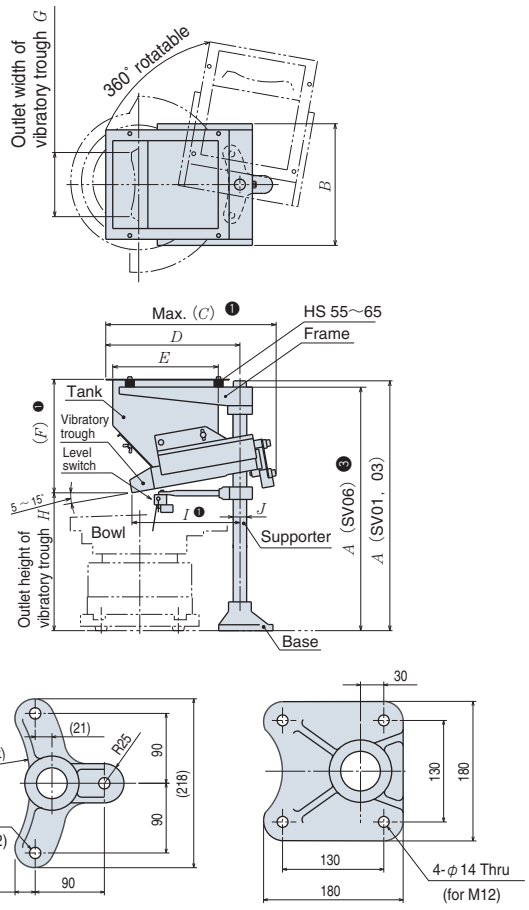
- Voltage/drive system ※1
- Tank material (S: stainless steel)
- Storage capacity
- Type code

K-SV1S4, SV3S4



Base part dimensions (top view)

K-SV01S$^{3}_{4}$～SV06S4



K−SV01, SV03
Base part dimensions (top view)

K−SV06
Base part dimensions (top view)

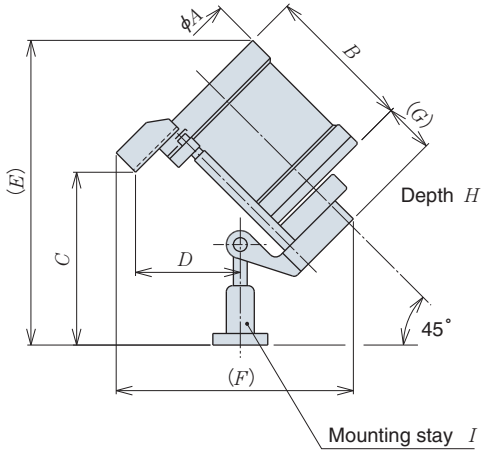
Part number	Dimensions (mm)			Tank capacity (ℓ)	Max.work input mass (kg)	Mass (kg)	Rated voltage (V)	Rated current (mA)	Tank material	Vibratory trough material	Applicable controller (variable frequency)
	A	*B*	*C* ❶								
K-SV1S4	310～400	233	155～245	1.5	6	5.6	200	80	SUS❷	SUS❷	K-EGA57
K-SV3S4	400～490	323		3	8	6.5					

Part number	Dimensions (mm)										Tank capacity (ℓ)	Max.work input mass (kg)	Mass (kg)	Rated voltage (V)	Rated current (A)	Tank material	Vibratory trough material
	A	*B*	*C* ❶	*D*	*E*	*F* ❶	*G*	*H* ❶	*I* ❶	*J*							
K-SV01S3	760	340	500	380	300	315	180	335～465	305	φ40	15	40	34	100	1.7	SUS❷	SUS❷
K-SV01S4														200	0.9		
K-SV03S3	810	390	600	480	400	365	218		315		30	80	40	100	1.7		
K-SV03S4														200	0.9		
K-SV06S4	905~975	510	720	585	480	430	270	520~590	445	φ50	60	160	68	200	1.5		

❶ The dimensions in the diagram correspond to a vibratory trough tilt angle of 10°.
❷ Polyurethane-coated tanks and vibratory troughs are available upon request.
❸ The stay of Model SV06 does not protrude from the top of the frame.
❹ Applicable controllers: K-EGA57, K-ECF25 (cannot be installed to the support section)

NTN parts feeder

Rotary hopper



■ Dimensions

Part number		K-UV001
Dimensions (mm)	A	118
	B	130
	C	170
	D	75
	E	290
	F	220
	G	55
	H	118
Mounting stay I		K-PZ0509

■ Specifications

Part number		K-UV001
Max. drum capacity (mℓ)		300
Max. load (kg)		1
Drum speed (rpm)	50Hz	6.7
	60Hz	8
Rated voltage (V)		100
Power consumption (W)	50Hz	3
	60Hz	3
Discharge rate (mℓ/min) ❶		2～3
Max. allowable work piece size (mm)		5
Material (as machined)		A2024

❶ Discharge rate values in the list above are measured dy discharging river sand at a drum angle of 45˚. Some parts cannot be discharged, depending on shape.

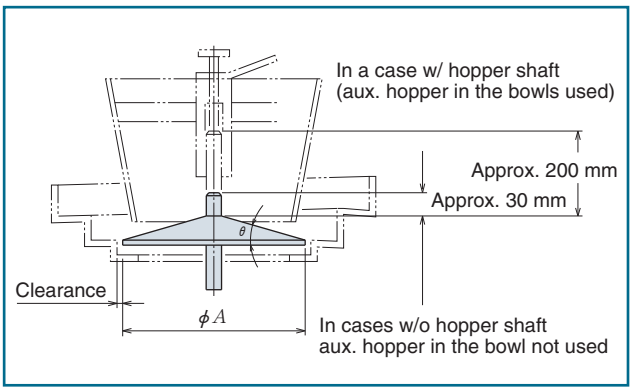
Remark 1) Using a level switch (K-UE010) (optional) that can be operated by a slight pressure together with a proximity switch enables more effective control.

Isolated bottom

K- PS - 25 L
- L: Length of shaft ❶
- 25: Size
- PS: Isolated bottom code

An isolated bottom means a bottom that is vibrationally isolated forming the central, bottom section of the cascade bowl. Although these bottoms rotate as pieces in the bowl are rotated, they have a vibration-free construction. As a result, noise is kept very low, the rate of damaged parts fed is reduced, and feed speed is more stable. The adoption of various damping materials, such as laminated damping steel sheet, has resulted in a dramatic drop in noise level for hoppers loaded with parts.

If a hopper with a particularly narrow clearance is required, please consult **NTN** Engineering.



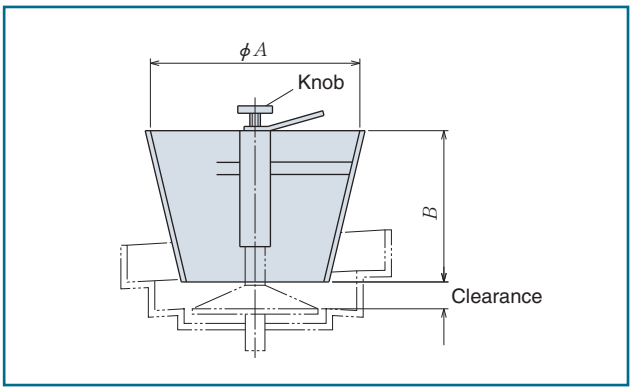
Specifications / Part number	A (mm)	Bottom angle θ°	Standard clearance (mm)	Applicable unit	Standard material
K-PS-25 S/L	198.5	15°	1.6	N25	Stainless steel w/ damping material
K-PS-32 S/L	268	20°	2.0	N32	
K-PS-40 S/L	334	15°	2.0	N40	Mild steel w/ stainless steel lamination
K-PS-63S	475		4.0	G50/G63	Al casting

❶ S : short shaft, L: long shaft (for aux. hopper in the bowl)

Auxiliary hopper in the bowl

K- H 25
- 25: Size
- H: Aux. hopper code

An auxiliary hopper in the bowl is a small hopper for storing parts for feeding; it can be fitted in the bowl using the shaft of the isolated bottom.
This helps to make the feeding system more compact, since extra bench or floor space is not required, unlike conventional separate hoppers.
The run-off of parts fed can be adjusted by turning the upper knob to adjust the lower clearance.
Note that the auxiliary hopper is not suitable for parts that can be easily tangled or that do not slide well.
For such work pieces, use the **NTN** hopper series.

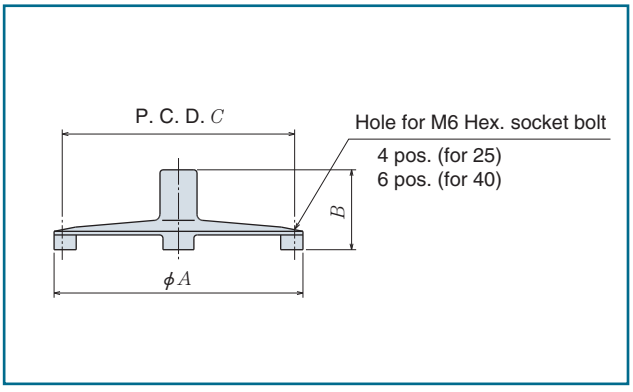


Specifications / Part number	Dimensions (mm) A	Dimensions (mm) B	Applicable unit	Standard material	Approx. capacity (ℓ)
K-H25	300	200	N25	SUS	7
K-H32	340	230	N32		12
K-H40	430	250	N40		20

Fixed bottom

K- PBB - 25
- 25: Size
- PBB: Fixed bottom code

If an isolated bottom cannot be used together with a bottomless bowl, use a fixed bottom. The handling quality of the fixed bottom is the same as that of integrated bottom bowls.



Specifications / Part number	Dimensions (mm) A	Dimensions (mm) B	Dimensions (mm) C	Applicable unit	Standard material
K-PBB-25	200	64	186	N25	Polyurethane-coated Al casting
K-PBB-40	336	74	320	N40	

NTN parts feeder

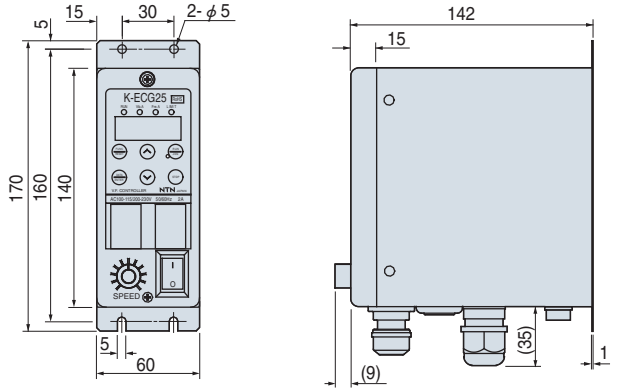
Small variable frequency controller

K- E CF 2 5

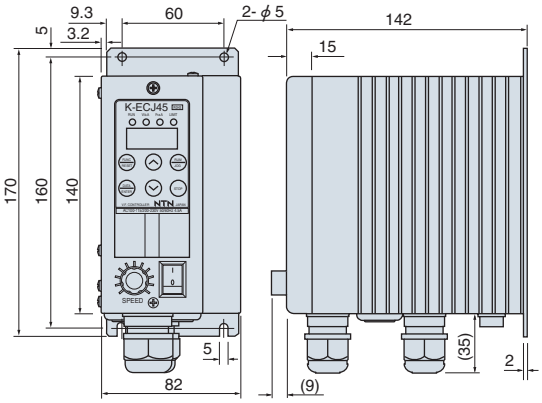
- Voltage and drive system
- Control capacity
- Control function (application)
- Controller code

Standard type, Multifunction type

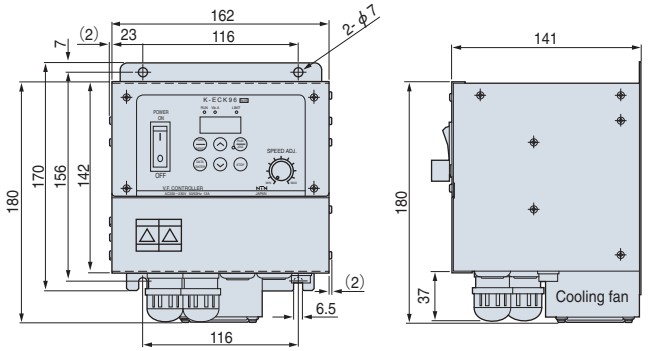
K-ECF25, K-ECG25



K-ECH45, K-ECJ45

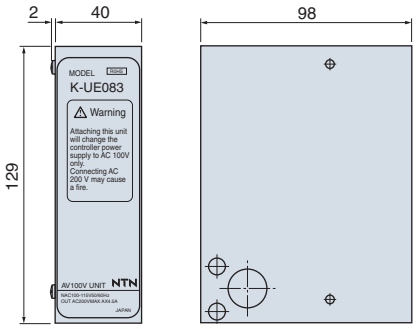


K-ECK96



The separate vibration sensor (K-P1398) is required when using the constant amplitude function.

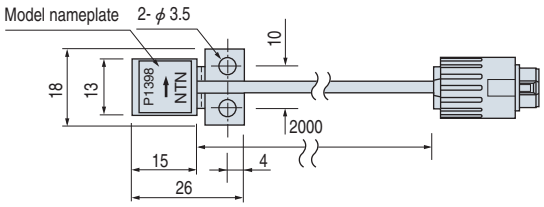
K-UE083



There is no attachment hole as the controller is fixed from the side.

K-P1398

Attached to K-ECG25 and K-ECJ45



Part number	Control functions	Control capacity (A)	Supply voltage (V)	Applicable drive unit
K-ECF25	External control + ON/OFF control with sensor + operation instructions	2A	100/200V	K10～K16, K20 (200V), K25 (200V) S-series, V-series (200V)
K-ECG25	External control + ON-OFF control with sensor + operation instructions + resonance point tracing and constant amplitude			
K-ECH45	External control + ON/OFF control with sensor + operation instructions	4.5A		N32, N40, G50・1, K20 (100V) , N25 (100V), V-series (200V)
K-ECJ45	External control + ON-OFF control with sensor + operation instructions + resonance point tracing and constant amplitude			
K-ECK96	External control + ON-OFF control with sensor + operation instructions + constant amplitude	12A	200V	G63
K-UE083	Boosting from 100 V to 200 V	4.5A	100V	K-ECF25, K-ECG25, K-ECH45, K-ECJ45

NTN parts feeder

Small variable frequency controller

K- E CF 2 5
- Voltage and drive system
- Control capacity
- Control function (application)
- Controller code

Small variable frequency controller

■Features

- **Reduced size and extended functions**
  Drastic miniaturization and weight saving realized
  Convenient functions added to those of conventional machines such as multiple-speed control, short work alarm, air blow control and jog operation
- **Constant amplitude and resonance point tracing functions provided**
  Constant amplitude and resonance point tracing functions realized through feedback control using vibration sensors

Part number		K-ECF25	K-ECH45	K-ECG25	K-ECJ45	K-ECK96
Power supply	Rated voltage	Single-phase 100 to 115 V AC/200 to 230 V AC ±10%				Single-phase AC/200 to 230 V ±10%
	Frequency	50/60 Hz common				
Output	Voltage	Single-phase AC 0 to 100/0 to 200 V (1 V units), switches automatically to suit the power supply voltage ❶				0～200V
	Frequency	30 to 500 Hz (in 0.1 Hz increment)				30～200Hz
	Rated current	2.0A	4.5A	2.0A	4.5A	12.0A
	Drive system	Sine wave PWM				
	Service power supply	DC 24V, 200mA				DC 24V, 100mA
Control		Microcomputer based				
External control input		1 point (NPN/PNP transistor control available, inversion of signal available)				
Software start / stop		Yes (0.0 to 5.0 sec each variable) ❷				
Constant voltage function		Output voltage remains within 3% in the event of a 10% variation in supply voltage. ❸				
Constant amplitude function		No		Yes ❹		
Resonance point tracing function		No		Yes ❹		No
Sensor input		2 points (for NPN open collector), inversion of signal available				Single
ON/OFF delay time		2 points each (ON: 0.0 to 60.0 sec variable, OFF: 0.0 to 30.0 sec variable)				Single for each
Control output	Relay contact	1a×2(AC250V/0.1A)	Run signal: 1 point, fault signal: 1 point			
	Tr signal	1a×4(DC 30V/0.1A)	Solenoid valve control: 3 points, alarm: 1 point)			1a×1
Other functions		Panel lock, panel control and data monitoring according to 7-segment LED				
Operating temperature range		0 to 40˚C				
Protection		Overload, short circuit and F-V curve				
Accessories		No		Vibration sensor (K-P1398), 1 piece		❺
Mass		About 1.1 kg	About 1.7 kg	About 1.2 kg	About 1.7 kg	About 3.5 kg

❶ In the event of 200 V output for 100 V AC input, a booster unit (optional) is required separately.
❷ Minimum setting time indicated is 0.0 sec. But, the minimum operating time on the soft timer is about 50 msec.
❸ This applies when the output voltage is set to a value within the range of 30 to 80 V (100 V) or 60 to 170 V (200 V).
❹ Application is disapproved or operational restriction may be imposed depending on the applicable vibratory drive unit or operating conditions.
❺ The ECK96 vibration sensor is optional.

Booster unit

■Features

This booster unit exclusive for small controller series products is so designed as to drive 200 V AC load on a 100 V AC power supply.

Part number		K-UE083 ❶
Power supply	Input voltage range, frequency	Single-phase 100 to 115 V AC (-5 to +10%), 50 to 60 Hz 10%
Output	Output voltage, rated current	280 V DC (Input voltage 100 V AC, under no load ❷), 4.5 A

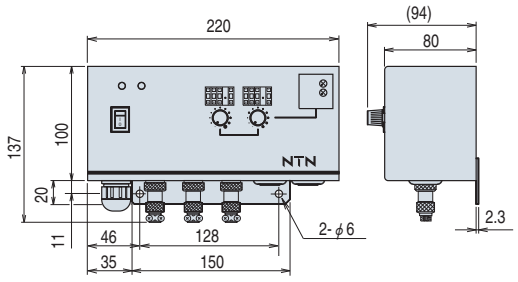
❶ This unit is exclusively for the Variable Voltage Variable Frequency Small Controller. Always purchase it as a pair with a controller, as it cannot be attached later.
This model comes with booster unit, so for details, contact **NTN** Engineering
❷ When rated load is connected to ECH45/ECJ45, the maximum output voltage of the controller is about 190 V.

NTN parts feeder

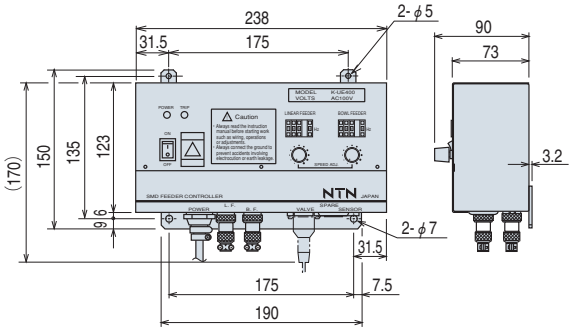
SMD controller

K- E T9 1 8
- Voltage and drive system
- Control capacity
- Control function (application)
- Controller code

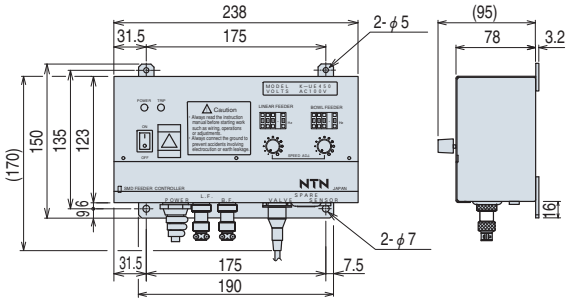
K-ET918 (standard twin type, with metal connectors)



K-UE410 (highly functional twin type)



K-UE450 (highly functional twin type)



Part number	Control functions ❶	Control capacity (A)	Supply voltage (V)	Applicable drive unit
K-ET918	External control + ON/OFF control with sensor + operation instructions	0.5	100	HS05, HS07, S05, S08, S10
		1.8		HF10, HF14, K-series
K-UE410 K-UE450	External control + sequence control	0.5	100	HS05, HS07
		1.0		HF10, HF14

❶ For details of control functions, refer to page 43.

Model		K-ET918	K-UE410	K-UE450
Power supply	Rated voltage	AC 100V～115V ±10%		
	Frequency	50/60 Hz common		
Output	Voltage	0～95V ❶		
	Voltage stability	Maximum output voltage varies within 3% in the event of a ±10% variation in supply voltage when the output voltage is 85 V or lower.		
	Frequency ❸	20.0～199.9Hz		
	Frequency stability	Maximum frequency varies within 0.2% in the event of a ±10% variation in supply voltage		
	Frequency setting accuracy	±1% of the max. frequency		
	Max. allowable current	1.8 A for bowl feeder, 0.5 A for linear feeder	1.0 A for bowl feeder, 0.5 A for linear feeder	
	Service power supply	DC 12V 80mA	DC 24V 250mA	
	Drive system	PWM		
Control		Analog system		
Control input (S1-S2)		Open-collector connectable (Run at close, and stop when opened)		
Control input (S3-S4)		Open-collector connectable (Switch-selectable between linear feeder input and “unused.”)	———	
Control input (for timer)		Open-collector connectable (2-wire sensor connectable) (polarity reversible)	———	
Sequence input		———	4 points (Requirements are the same as those for control inputs [S1, S2].) ❷	9 points (Requirements are the same as those for control inputs [S1, S2].) ❷
Timer setting		ON 0.1 - 10 sec OFF 0.1 - 10 sec.	Timer settings are predetermined by the internal program.	
Control output		1 point: No-voltage relay output (synchronous with bowl feeder)	2 points: Open-collector transistor output (run, bowl feeder synchronization)	
Valve control output		1 point: 100 VAC solenoid valve (synchronized with bowl feeder) ❹	3 points, 24 VDC solenoid valve ❷	6 points, 24 VDC solenoid valve ❷
Software start		Variable 0.2 - 2.0 sec		
Operating temperature range		0～40˚C		
Wiring of connection system to vibratory driving unit		Connections with metal connector (Connections with terminal block)		
Mass		2.9kg		

❶ Depending on the measuring instrument used, the output voltage may exceed the 0–95 V range. Also, the maximum output voltage can vary depending on the frequency setting.
❷ With a special programming tool, you can vary the timer constant and the number of inputs and outputs used. The maximum numbers of controllable inputs and outputs are seven inputs and five outputs for Model K-UE410 and 10 inputs and eight outputs for Model K-UE450.
❸ This is the driving frequency. The frequency of the parts feeder is approximately twice as high and within the range of 40.0–399.8 Hz.
❹ The supply voltage is applied to the solenoid valve.
❺ Do not use the controller in the presence of corrosive gas or in a very dusty environment; or where substances capable of damaging the electrical components, resins, or sheet metal can contact the controller.

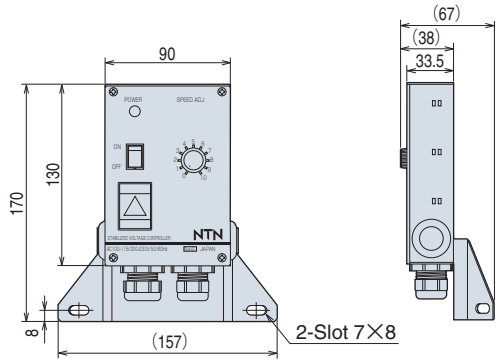
NTN parts feeder

Constant voltage controller

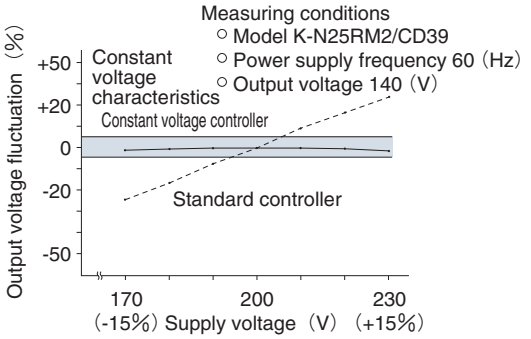
K - E G A 5 7

- Voltage, drive system
- Control capacity
- Control function (application)
- Controller code

K-EGA17, K-EGA57

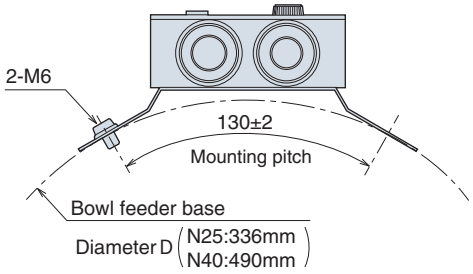


Rated voltage characteristics

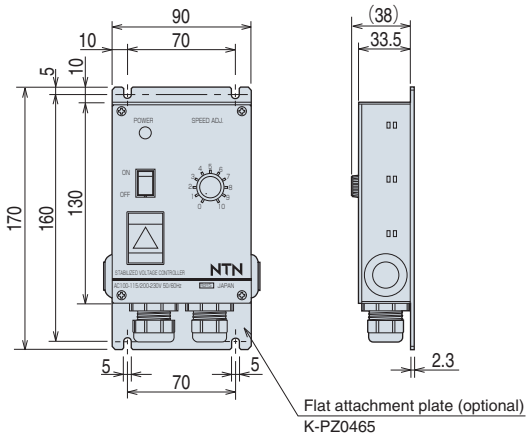


Mounting dimensions

View of standard attachment foot from the bottom



※Flat attachment foot (optional: K-PZ0465)



Model		K-EGA17	K-EGA57
Power supply	Rated voltage	Single-phase, 100～115/200～230V AC, ±10%	
	Frequency	50 Hz/60 Hz switch-selectable	
Output	Voltage	Single-phase AC 0 to 95/0 to 190 Vmax ❶ (linked to switching between power supply voltage. The lower value and upper value differ depending the usage conditions.)	
	Rated current	0.3A	5.0A
	Drive system	Full wave / half wave switch-selectable	
Software start / stop		Possible (variable in eight increments of 0.1 to 1 second)	
Constant voltage function		±3% or less of output voltage fluctuation against ±10% of supply voltage fluctuation ❷	
Operating temperature range		0～40˚C ❸	
Mass		Approx. 0.5 kg	

❶ There may be differences in measured values depending on measuring instruments, because output voltage is adjusted via a phase control technique.
❷ The values of the constant voltage characteristics are based on an output voltage set from 30 V to 85 V (for 100 V power supply) or from 60 V to 170 V (for 200 V power supply).
❸ Do not use the controller in the presence of corrosive gas or in a very dusty environment; or where substances such as water, oil, and solvents capable of damaging the electrical components, resins, or sheet metal can contact the controller.

Part number	Control function❶	Control capacity (A)	Applicable unit
K-EGA17	External contro + ION/OFF control with level switch	0.3	S05, S08
K-EGA57		5.0	K-series, N-series, G50・1, S-series, L20, V-series, SV-series

❶ For details of control functions, refer to page 43. For details, contact **NTN** Engineering.

NTN parts feeder

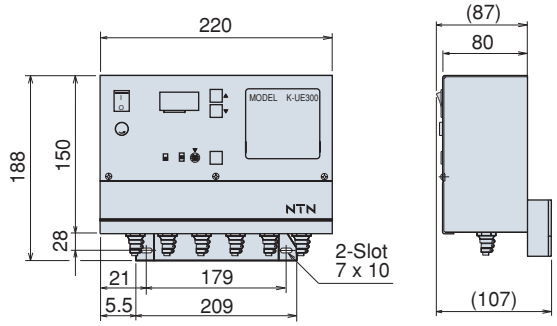
I/O controller unit

K-UE300

- Unit number
- Unit code
- Semi-standard unit

The I/O control unit contains a program package that enables parts sorting and multi-lane parts feed in the bowl by means of sensors. It also controls the sorting mechanism at the exit. Thus, even an inexperienced operator can control the feeder system by specifying only a program number and defining a timer setting.

K-UE300

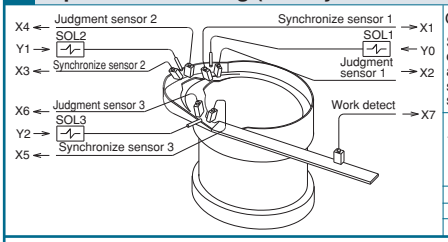


Part number		K-UE300
Power supply	Power supply voltage	AC 100～115V/200～230V
	Frequency	50/60Hz
Input	Number of points	8 points
	Input current	4.8 mA max. (per point)
Output	Service power supply	DC24V 500mA
	Number of points	Transistor output 7 points (for DC) Photo MOS relay output 3 points (common to AC and DC) Total 10 points (Because the same signal is redundantly fed at 2 points of the above 10 points.)
	Output current	Transistor, 0.2A/point Photo MOS relay, 0.1A/point
	Rated voltage	Transistor, 24V DC Photo MOS relay, 230V AC/DC
Timer	Number of allowable settings	10 settings (per program)
	Duration of setting	0.1 - 99.9 sec.
Allowable number of settings		Resident programs, 10 Free programs, 9 ❶
Operating temperature range		0～40˚C
Mass		2.5kg

❶ A "free program" is a programmable area in which a user can freely create a parts feed program. Note, however, that the user must purchase an optional programming tool for this purpose.

■Program examples

A 3-point work sorting (with synchronize sensor)



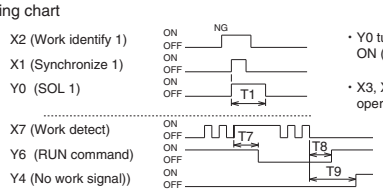
Outline of function

Sorting of work pieces is controlled at up to three points according to the signals from a synchronize sensor + judgment sensor.

Basic functions ○ : standard feature △ : possible with additional wiring × : not permitted

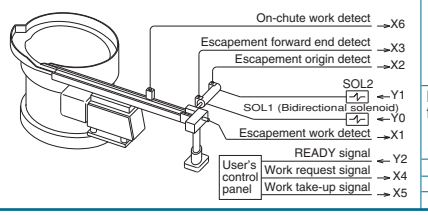
Overflow function	○
In-run airblow	△
No work alarm	○

Timing chart



- Y0 turns ON when both X2 and X1 turn ON (to eject a reject).
- X3, X4, Y1, T2, and X5, X6, Y2 and T3 operate in a manner identical to Y0.

B Escapement control (work request signal + work take-up signal)



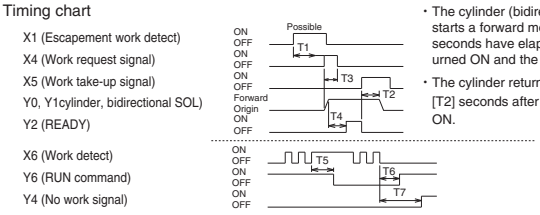
Outline of function

The escapement is triggered according to a work request signal. The escapement is reset when a work take-up signal is detected.

Basic functions ○ : standard feature △ : possible with additional wiring × : not permitted

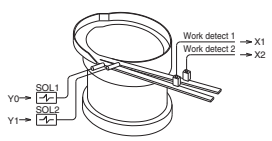
Overflow function	○
In-run airblow	△
No work alarm	○

Timing chart

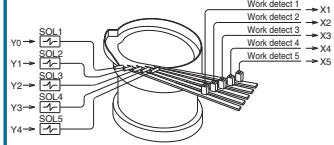


- The cylinder (bidirectional SOL) starts a forward motion after [T1] seconds have elapsed after X1 is urned ON and the X4 turns ON.
- The cylinder returns to its origin [T2] seconds after the X5 turns ON.

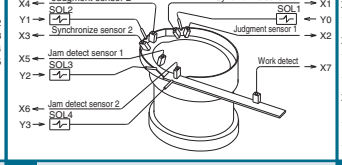
C 2-lane air-overflow control



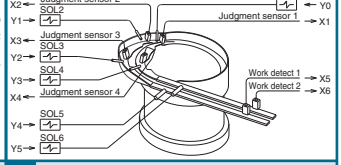
D 5-lane air-overflow control



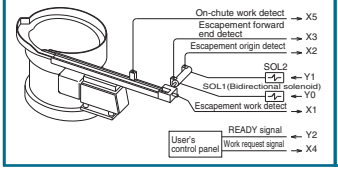
E 2-point work sorting (with synchronize sensor)



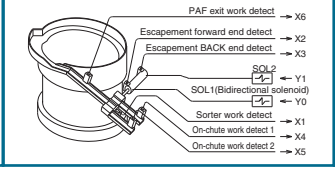
F 4-point work sorting



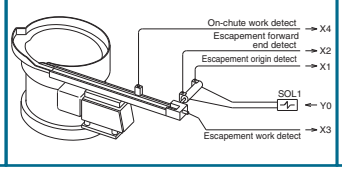
G Escapement control (work request signal)



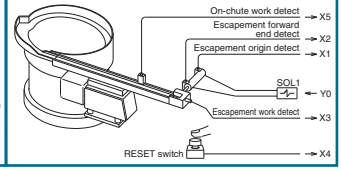
H Escapement control (2-lane sorting)



J Escapement control for test (continuous RUN)



K Escapement control for test (manual reset)

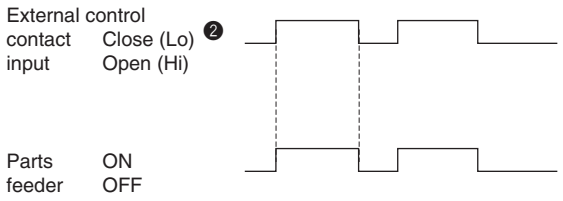


※*For detailed information about control, contact **NTN** Engineering.

Control functions and timing chart

External control

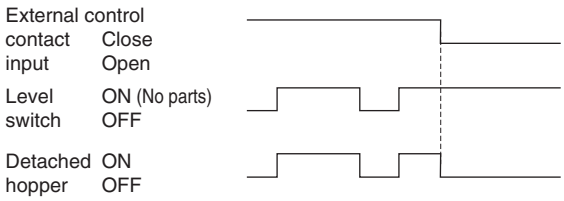
Timing chart



●The parts feeder is turned ON/OFF with an external signal.

External control+ON/OFF control with level switch

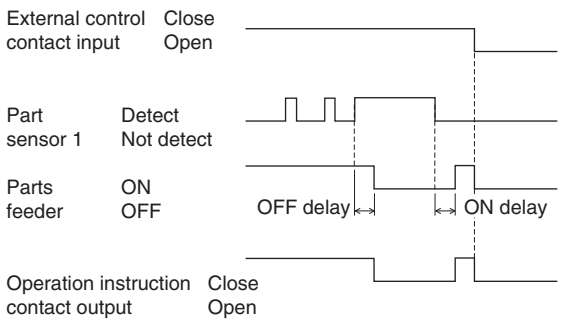
Timing chart



●Detached hopper is automatically turned ON/OFF by the level switch which detects the quantity of any pieces in the parts feeder bowl.

External control+ON/OFF control with sensor +operation instruction

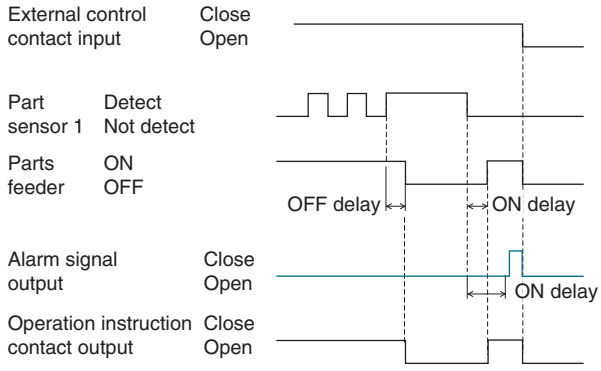
Timing chart



●Parts feeder is turned OFF if the sensor does not detect any pieces during a predetermined time period .
(Built-in ON/OFF delay timer)

External control+ON/OFF control with sensor +no-work alarm+operation instruction

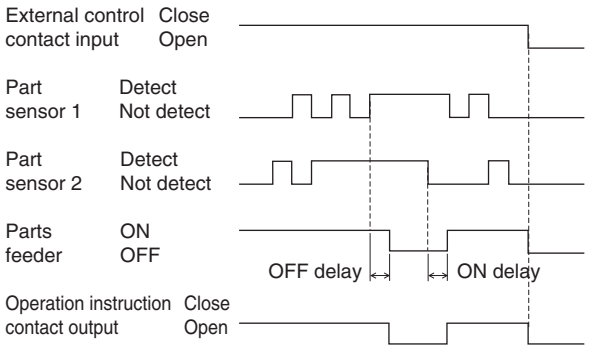
Timing chart



●If the sensor has failed to detect any parts for a predetermined duration (max. 60 sec.), the contact signal is output for alarm.

External control+ON/OFF control+logic circuit with 2 sensors+operation instruction

Timing chart



●Parts feeder is turned OFF if neither sensors detect any pieces, or when either sensor no longer detects any pieces.
(Built-in ON/OFF delay timer)

❶ Use a relay contact to open the external control input for the EGA. Use an open collector transistor to control other controllers. The input logic can be reversed for variable frequency controllers other than SMD controllers.
● Note: Choose a relay with a minimum applicable load that does not exceed 1 V and 1 mA and with a minimum permissible contact voltage of 250 V to control the EGA mode. If the leakage current is 100μA or less, a MOSFET relay for alternating open/close can also be used for control.
❷ The controller settings vary depending on whether the Variable Voltage Variable Frequency Small Controller is turned ON with a closed contact (Low) or open contact (High).
❸ Assumes that work sensor 1 and 2 operates on the controller service power supply. For details, refer to the specifications of the controller service power supply. Use an NPN open collector output sensor. The input logic of the sensor signal can be reversed at the controller side.
❹ The run instruction output is a signal for controlling standalone hoppers. It can also be used as a run signal for controllers.
❺ When using an external transformer, calculate its capacity using the formula below.

Full wave: $\left(\frac{\text{parts feeder}}{\text{supply voltage}}\right)\times\left(\frac{\text{parts feeder}}{\text{rated current}}\right)\leqq$ transformer capacity

Half wave: $\left(\frac{\text{parts feeder}}{\text{supply voltage}}\right)\times\left(\frac{\text{parts feeder}}{\text{rated current}}\right)\times 2\leqq$ transformer capacity

Note: For details, refer to the controller manual or contact **NTN** Engineering.

Ordering parts feeders

Part number categories and notation

■Part number categories

NTN parts feeders can be designated and ordered using any of the three part number categories given below.

1) Unit part number: Units, such as vibratory drive units, bowls, and controllers (pages 11 through 43), and special-purpose parts feeders (pages 58 through 69).

2) Combination part numbers: Combinations of units as described in the standard series combination lists (pages 46 through 57).

3) Component part numbers: Specific parts such as leaf springs, mounting brackets, and optional parts (pages 69 through 76).

■Part number notation

1) Unit part number notation
- Simply write the unit part number of the vibratory driving unit, bowl, or controller, etc. that you wish to order.

2) Combination item number notation
- As shown in the standard series combination lists (pages 46 to 57):
  - □Specify a part number (blue characters in the table) after K-, and connect them with slash marks (/) in the order of K-Ⅰ (vibratory drive unit) / Ⅱ (bowls) .
  - □Possible combinations are: K-Ⅰ/Ⅱ only.
  - □Combination such as K-Ⅰ/Ⅲ, K-Ⅱ/Ⅱ,K-Ⅱ/Ⅲ are not acceptable. If such a combination is required, itemize the unit part numbers.
- Controllers cannot be included in a combination part number, so order separately specifying unit part numbers.
- An optional part cannot be included in a combination part number. Instead, order separately specifying its component number.

3) Component part number notation
- When ordering a component, such as a spring or stay mounting part, order by component number (pages 69 through 75).

Notes for ordering parts feeders

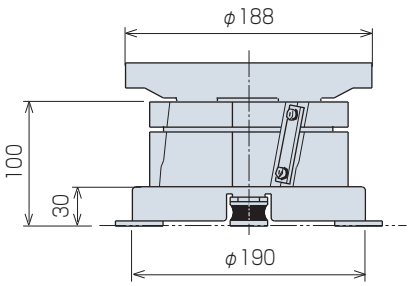
- **NTN** parts feeder series can be optimized for a specific application by combining various units. The combination of the three standard unit types—the vibratory drive units, bowls (vibratory trough mount), and controllers—provides for many different variations, allowing users to select the optimum configuration for aligning and feeding.
- Functions can be further expanded by incorporating peripheral accessories, such as auxiliary weights.
- Any combination of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for guidance. To purchase such a combination, units must be ordered individually. Remember however, that **NTN** cannot guarantee the performance and proper functioning of such combinations.

Standard Series Combination Table

HF10,14,16

(High-frequency bowl feeder)

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers

	Ⅰ Vibratory drive unit					Ⅱ Bowl		
K-	HF	14	R	2	1	C	18	01
	Drive unit model	Unit size	Supply direction	Design revision code	Voltage and drive system	Bowl type	Bowl outer dia.	Bowl suffix

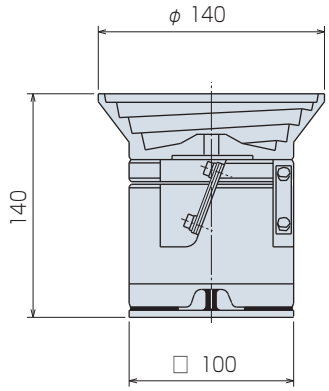
Model size	Ⅰ Vibratory drive unit	Ⅱ Bowl	Ⅲ Controller
HF10	K-HF10 R/L 21	C1201, C1403 ❶, C1501, C1701 ❶ — Cascade Z1201 — Straight wall bowl D1301, D1402 ❶ — Dish	T91 — SMD twin K-ECF25 — Variable frequency
HF14	K-HF14 R/L 21	C1801 — Cascade	K-ECF25 — Variable frequency
HF16	K-HF16 R/L 1		K-ECF25 — Variable frequency

❶ Manufactured only on special order.

Standard Series Combination Table

K10,14,16,20

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part number

Ⅰ Vibratory drive unit — Ⅱ Bowl

K- K 10 R □ 1 / C 14 01

- K: Drive unit model
- 10: Unit size
- R: Supply direction
- □: Design revision code
- 1: Voltage and drive type
- C: Bowl type
- 14: Bowl outer dia.
- 01: Bowl suffix

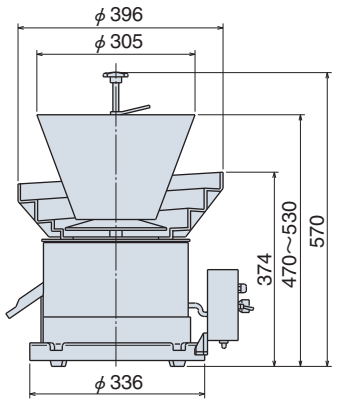
Model size	Ⅰ Vibratory drive unit	Ⅱ Bowl	Ⅲ Controller
K10	K-K10 R1 L2 Standard	C1201, C1401❶, C1501, C1502❶ — Cascade Z1201 — Straight wall D1301, D1402❶ — Dish	K-EGA57 — Constant voltage K-ECF25, K-ECG25 — Variable frequency
K14	K-K14 R1 L2	C2001 — Cascade Z2001 — Straight wall D2002 — Dish	
K16	K-K16 R3 L1 2	C2301, C2601 — Cascade Z2301, Z2302❶, Z2501 — Straight wall K2601❶ — Cone D2801 — Dish	K-EGA57 — Constant voltage K-ECF25, K-ECG25, K-ECH45, K-ECJ45 — Variable frequency
K20	K-K20 R1 L2 K-K20 R3 L4	S3201 — Cascade Z2801❶, Z3003❶ — Straight wall	

❶ Manufactured only on special order.

Standard Series Combination Table

N25

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part number

	I Vibratory drive unit						/	II Bowl			
K-	N	25	R	A	H	2	/	C	D	39	
	Drive unit model	Unit size	Supply direction	Design revision code※	Bowl mounting type	Voltage and drive system		Bowl type	Bowl bottom type	Bowl outer dia.	Design revision code

※Designs revision code A means free set base.

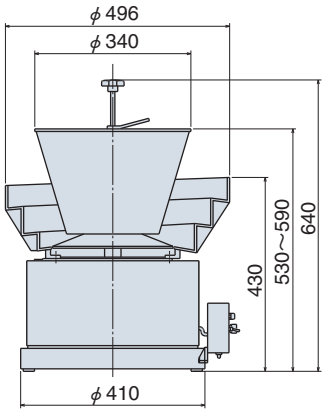
Model size	I Vibratory drive unit	II Bowl	III Controller
N25-H	K-N25$^{R}_{L}$H$^{1}_{2}$ K-N25$^{R}_{L}$AH$^{1}_{2}$ w/ Aux. hopper in the bowl	CD33, CD39, CD391 — Cascade SD39, SD391 — Stainless steel cascade ZD30❶, ZD301❶, ZD302❶, ZD35, ZD351❶, ZD352 — Straight wall KD35 — Cone	K-EGA57 — Constant voltage K-ECF25, K-ECG25, K-ECH45, K-ECJ45 — Variable frequency
N25-T	K-N25$^{R}_{L}$T$^{1}_{2}$ K-N25$^{R}_{L}$AT$^{1}_{2}$ w/ Isolated bottom		
N25-F	K-N25$^{R}_{L}$F$^{1}_{2}$ K-N25$^{R}_{L}$AF$^{1}_{2}$ w/ Flange	SF39, SF391 — Stainless steel cascade Integrated bottom ZF30❶, ZF301❶, ZF302❶, ZF35, ZF351❶, ZF352 — Straight wall KF35❶ — Cone DF42 — Dish	
N25-M	K-N25$^{R}_{L}$M$^{1}_{2}$ K-N25$^{R}_{L}$AM$^{1}_{2}$ Basic type	CB33, CB39, CB391 — w/ Fixed bottom Cascade	

❶ Manufactured only on special order.

Standard Series Combination Table

N32 (Full wave)

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers

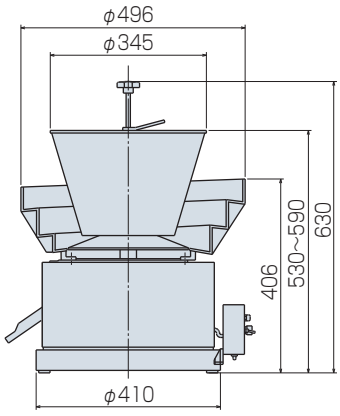
	Ⅰ Vibratory drive unit						/	Ⅱ Bowl			
K-	N	32	R	2	H	2	/	S	D	49	1
	Drive unit model	Unit size	Supply direction	Design revision code	Bowl mounting type	Voltage and drive system		Bowl type	Bowl bottom type	Bowl outer dia.	Design revision code

Model size	Ⅰ Vibratory drive unit	Ⅱ Bowl	Ⅲ Controller
N32·H (Full wave)	K-N32RL2H2 K-N32RLAH2 w/ Aux. hopper in the bowl	SD491 Stainless steel cascade ZD401 Straight wall	K-EGA57 Constant voltage
N32·T (Full wave)	K-N32RL2T2 K-N32RLAT2 w/ Isolated bottom		
N32·F (Full wave)	K-N32RL2F2 K-N32RLAF2 w/ Flange	SF491 Stainless steel cascade Integrated bottom ZF401 Straight wall Integrated bottom	
N32·M (Full wave)	K-N32RL2M2 K-N32RLAM2 Basic type		K-ECH45 K-ECJ45 Variable frequency

Standard Series Combination Table

N32 (Half wave)

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers

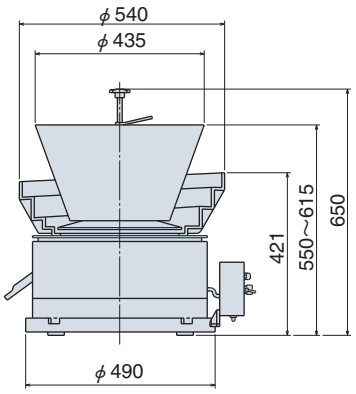
	I Vibratory drive unit						/	II Bowl			
K-	N	32	R	2	H	4	/	S	D	49	1
	Drive unit model	Unit size	Supply direction	Design revision code	Bowl mounting type	Voltage and drive system		Bowl type	Bowl bottom type	Bowl outer dia.	Design revision code

Model size	I Vibratory drive unit	II Bowl	III Controller
N32-H (Half wave)	K-N32 R/L 2H4 K-N32 R/L AH4 w/ Aux. hopper in the bowl	SD491 Stainless steel cascade ZD401 Straight wall	K-EGA57 Constant voltage
N32-T (Half wave)	K-N32 R/L 2T4 K-N32 R/L AT4 w/ Isolated bottom		
N32-F (Half wave)	K-N32 R/L 2F4 K-N32 R/L AF4 w/ Flange	SF491 Stainless steel cascade Integrated bottom ZF401 Straight wall Integrated bottom	
N32-M (Half wave)	K-N32 R/L 2M4 K-N32 R/L AM4 Basic type		K-ECH45 K-ECJ45 Variable frequency

Standard Series Combination Table

N40 (Full wave)

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers

	I Vibratory drive unit						II Bowl			
K-	N	40	R	□	H	2	/ C	D	54	□
	Drive unit model	Unit size	Supply direction※	Design revision code	Bowl mounting type	Voltage and drive system	Bowl type	Bowl bottom type	Bowl outer dia.	Design revision code

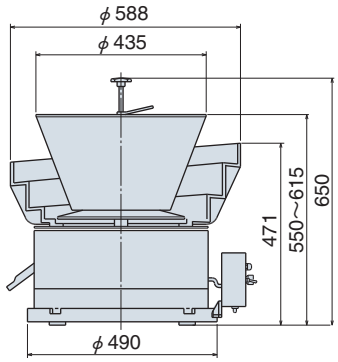
※Design revision code A means free set base.

Model size	I Vibratory drive unit	II Bowl	III Controller
N40-H (Full wave)	K-N40RLH2 K-N40RLAH2 w/ Aux. hopper in the bowl	CD54 Cascade SD54 Stainless steel cascade	K-EGA57 Constant voltage K-ECH45 K-ECJ45 Variable frequency
N40-T (Full wave)	K-N40RLT2 K-N40RLAT2 w/ Isolated bottom		
N40-M (Full wave)	K-N40RLM2 K-N40RLAM2 Basic type	CB54 w/ Fixed bottom Cascade	

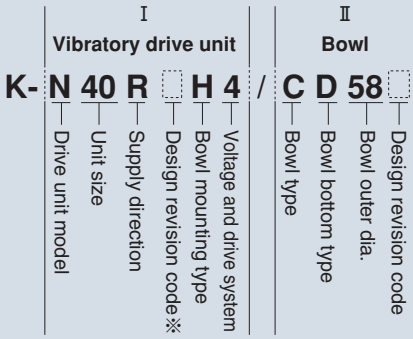
Standard Series Combination Table

N40 (Half wave)

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers



※Design revision code A means free set base.

Model size	I Vibratory drive unit	II Bowl	III Controller
N40-H (Half wave)	K-N40 R/L H4 K-N40 R/L AH4 w/ Aux. hopper in the bowl	CD54 CD58 CD64 CD641 — Cascade SD54 SD58 SD64 SD641 — Stainless steel cascade ZD45 ZD50 — Straight wall KD55❶ — Cone	K-EGA57 — Constant voltage
N40-T (Half wave)	K-N40 R/L T4 K-N40 R/L AT4 w/ Isolated bottom		
N40-F (Half wave)	K-N40 R/L F4 K-N40 R/L AF4 w/ Flange	SF54 SF58 SF64 SF641 — Stainless steel cascade Integrated bottom ZF45 ZF451❶ ZF50 ZF501❶ ZF502❶ ZF55 ZF60❶ — Straight wall KF55❶ — Cone DF64 DF641 — Dish	
N40-M (Half wave)	K-N40 R/L M4 K-N40 R/L AM4 Basic type	CB54 CB58 CB64 CB641 — w/ Fixed bottom Cascade	K-ECH45 K-ECJ45 — Variable frequency

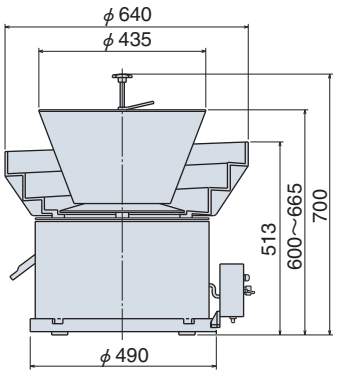
❶ Manufactured only on special order.

Standard Series Combination Table

N40 • 1

N40 type applicable to large amplitude

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers

	I Vibratory drive unit						/	II Bowl			
K-	N	40	R	1	H	4	/	C	D	64	□
	Drive unit model	Unit size	Supplying direction	Design revision code	Bowl mounting type	Voltage and drive system		Bowl type	Bowl bottom type	Bowl outer dia.	Design revision code

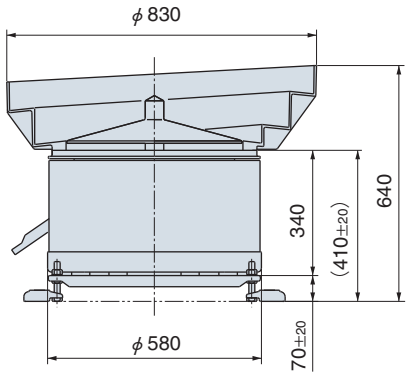
Model size	I Vibratory drive unit	II Bowl	III Controller
N40-1H	K-N40$^{R}_{L}$1H4 w/ Aux. hopper in the bowl	CD54, CD58, CD64, CD641 — Cascade SD54, SD58, SD64, SD641 — Stainless steel cascade ZD45, ZD50 — Straight wall KD55❶ — Cone	K-EGA57 — Constant voltage
N40-1T	K-N40$^{R}_{L}$1T4 w/ Isolated bottom		
N40-1F	K-N40$^{R}_{L}$1F4 w/ Flange	SF54, SF58, SF64, SF641 — Stainless steel cascade Integrated bottom ZF45, ZF451❶, ZF50, ZF501❶, ZF502❶, ZF55, ZF60❶ — Straight wall KF55❶ — Cone DF64, DF641 — Dish	K-ECH45, K-ECJ45 — Variable frequency
N40-1M	K-N40$^{R}_{L}$1M4 Basic type	CB54, CB58, CB64, CB641 — w/ Fixed bottom Cascade	

❶ Manufactured only on special order.

Standard Series Combination Table

G50

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers

	I Vibratory drive unit							/	II Bowl			
K-	G	50	R	1	T	4		/	C	D	83	
	Drive unit model	Unit size	Supply direction	Design revision code	Bowl mounting type	Voltage and drive system			Bowl type	Bowl bottom type	Bowl outer dia.	Design revision code

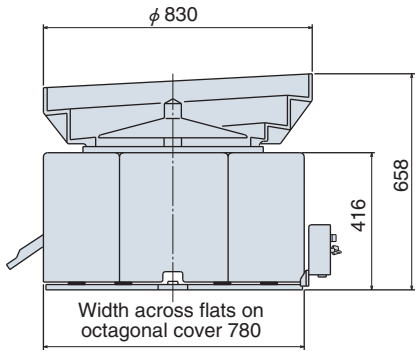
Model size	I Vibratory drive unit	II Bowl	III Controller
G50·T	K-G50[R/L]1T4 w/ Isolated bottom	CD83 Cascade	K-EGA57 Constant voltage
G50·G	K-G50[R/L]1G4 w/ Adapter	CB83 w/ Fixed bottom Cascade	K-EGA57 Constant voltage
G50·M	K-G50[R/L]1M4 Basic type	ZF651❶ Straight wall	K-ECH45 K-ECJ45 Variable frequency

❶ Manufactured only on special order.

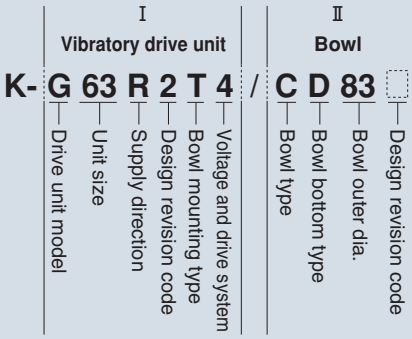
Standard Series Combination Table

G63

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers



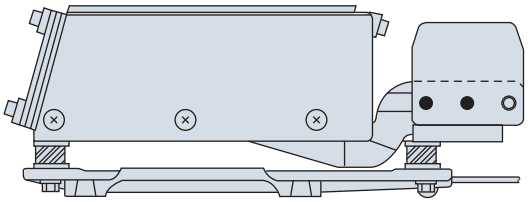
Model size	I Vibratory drive unit	II Bowl	III Controller
G63-T	K-G63 R/L 2T4 w/ Isolated bottom	CD83 Cascade SD83 Stainless steel cascade	K-ECK96 Variable frequency
G63-G	K-G63 R/L 2G4 w/ Adapter	CB83 w/ Fixed bottom Cascade	
G63-M	K-G63 R/L 2M4 Basic type	ZF75❶ Straight wall SF83 Stainless steel cascade Integrated bottom	

❶ Manufactured only on special order.

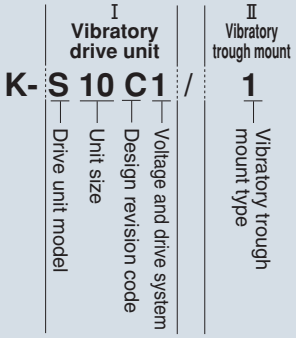
Standard Series Combination Table

S05,S08,S10 S20,S30,L20

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Examples of combination part numbers



※Design revision code A means no base plate.

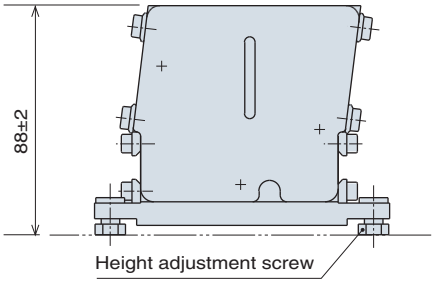
Model size	I Vibratory drive unit	II Vibratory through mount	III Controller	
S05	K-S05$1\frac{1}{2}$ K-S05A$1\frac{1}{2}$		K-EGA17	Constant voltage
S08	K-S08$2\frac{1}{2}$	1	K-ECF25 K-ECG25	Variable frequency
S10	K-S10B$1\frac{1}{2}$ K-S10C$1\frac{1}{2}$	1	K-EGA57	Constant voltage
S20	K-S20B$1\frac{1}{2}$ K-S20C$1\frac{1}{2}$	1	K-ECF25 K-ECG25	Variable frequency
S30	K-S30B4 K-S30C4	1		
L20	K-L20$1\frac{1}{2}$		K-EGA57 K-ECF25	Constant voltage Variable frequency

Standard Series Combination Table

HS05,07

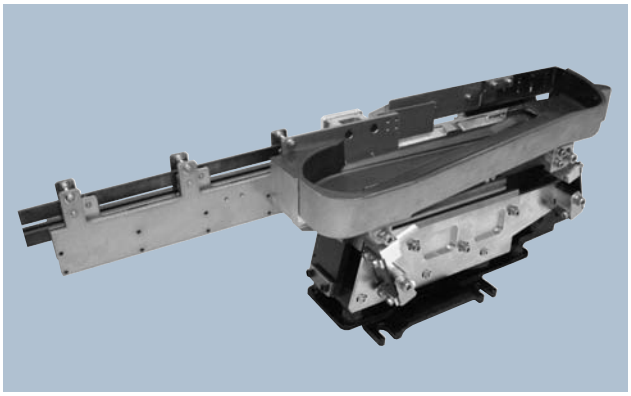
(High-frequency linear feeder)

- Any combinations of units identified by blue lines are available for order.
- Any combinations of units not identified by blue lines may pose certain technical problems. If such a combination is required, consult **NTN** Engineering for technical advice.



Model size	I Vibratory drive unit	III Controller
HS05	K-HS0521	K-ECF25 / K-ECG25 Variable frequency
HS07	K-HS0711	

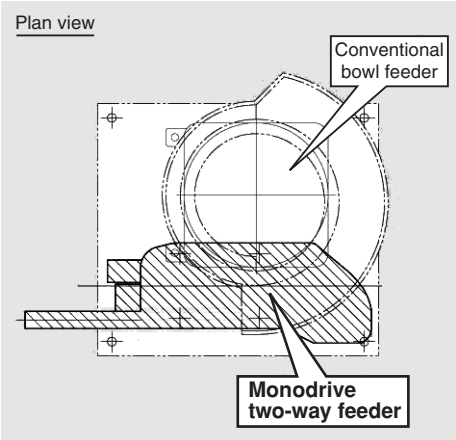
Monodrive 2-Way Feeder™



This revolutionary two-way feeder comprises only one linear feeder. It is capable of storing, aligning/orienting, and feeding parts.

Features

1. **One linear feeder drives two chutes in different directions — one for the aligning/orienting side and one for the returning side.**
   This novel return feeder comprises a conventional linear feeder and an innovative leaf spring unit mounted above the linear feeder. The linear feeder and leaf spring unit generate mutually counteracting vibrations in two different planes in order to align/orient and feed parts. (Patent pending)
2. **Compact, light and energy-efficient**
   Compared to bowl feeder designs, this liner aligning/orienting parts feeder is simpler, more compact, and requires roughly half the installation space. Furthermore, since one linear feeder can store, align/orient and feed parts, the entire production system can be made lighter and more energy-efficient.
3. **This simplified design is the ideal choice for multi-product, small-lot production.**
   The simplified construction ensures easier maintenance. This unique feeder handles a diversity of parts types and can be fitted with a chute suitable for a particular part type.



Applications and compatible work pieces

- Handles a diversity of parts types ranging from miniature to medium-sized.
- Accommodates machine parts, electronic components, plastic parts, and the like.

Specifications

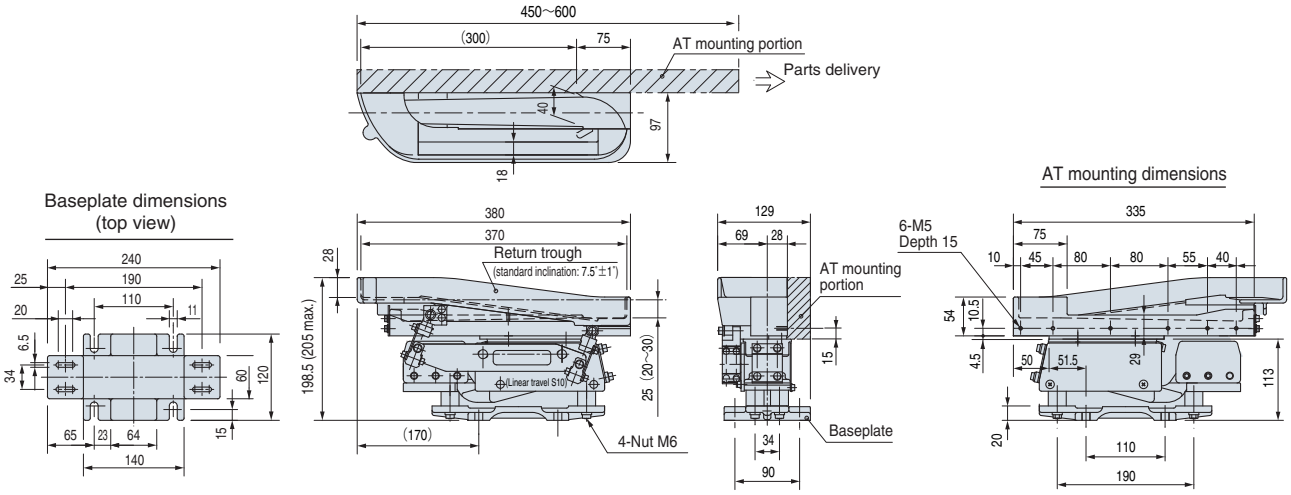
Model	Part No. ❶	Power supply (V/A)	Applicable leaf spring	Inclination angle of return trough (possible range)	Mounted chute ❷ Length (mm)	Mounted chute ❷ Mass (kg)	Maximum volume of work pieces loaded (ℓ) (Max. on solo basis)	Applicable controller	Mass (kg)
MD10	K-MD10$^{R}_{L}$B$^{1}_{2}$	100/0.4 200/0.2	K-PLS4-40×6 K-PLS4-41×7	Standard: 7.5° (±1°)	450～600	2	0.3	K-ECF 25	10.5
	K-MD10$^{R}_{L}$C$^{1}_{2}$								9
MD20	K-MD20$^{R}_{L}$B$^{1}_{2}$	100/1.0 200/0.5	K-PLS4-70×12 K-PLS4-62×12		550～800	5	0.7		19
	K-MD20$^{R}_{L}$C$^{1}_{2}$								15.5
MD30	K-MD30$^{R}_{L}$B4	200/0.9	K-PLS4-86×15 K-PLS4-100×20		850～1100	15	1.6		54
	K-MD30$^{R}_{L}$C4								46

❶ Two main feeder body types are available: R (clockwise) and L (counterclockwise). Also, feeder models are available with a baseplate (identified by suffix B) and without a baseplate (identified by suffix C).

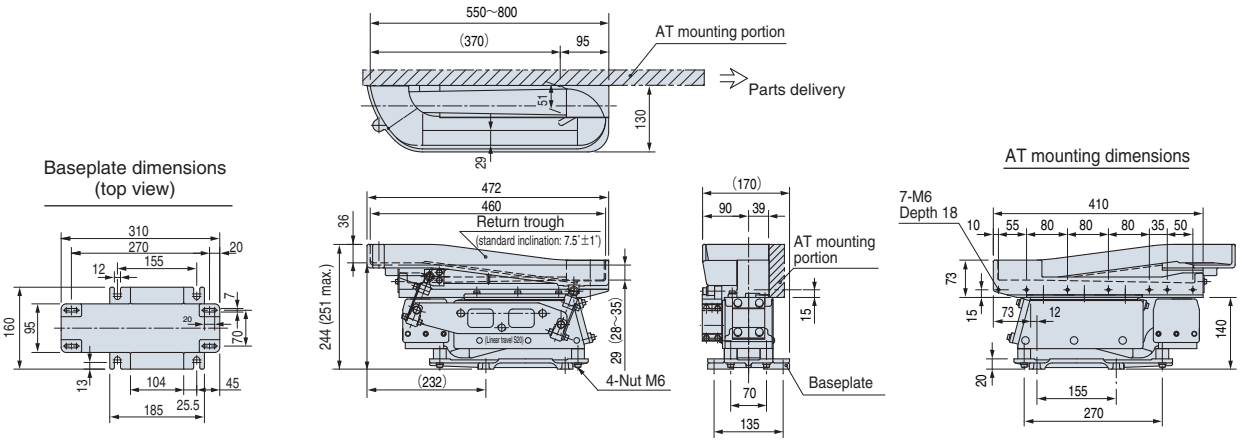
❷ The mass of the mounted chute is the mass value of a chute that can be added.

Structure and dimensions

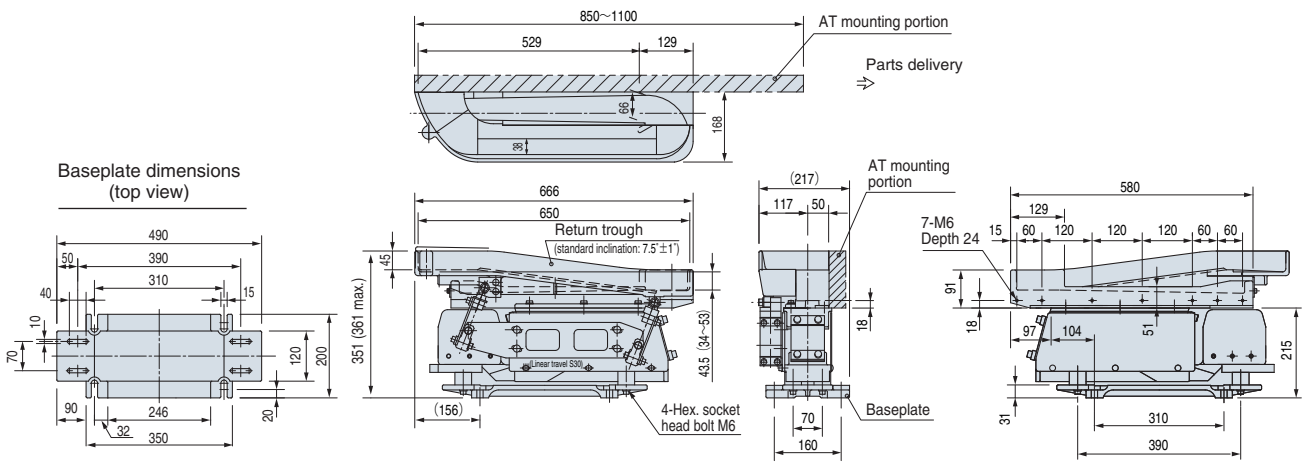
K-MD10$^{R}_{L}$B$^{1}_{2}$ (with baseplate)　K-MD10$^{R}_{L}$C$^{1}_{2}$ (without baseplate)



K-MD20$^{R}_{L}$B$^{1}_{2}$ (with baseplate)　K-MD20$^{R}_{L}$C$^{1}_{2}$ (without baseplate)



K-MD30$^{R}_{L}$B4 (with baseplate)　K-MD30$^{R}_{L}$C4 (without baseplate)



For specific dimensions of a linear feeder, see the specifications/dimensions page in this catalog.

Non-slip composite feeder

This unique feeder combines a rotary disk with a vibratory bowl feeder. It offers the orientating/aligning capabilities of a vibratory bowl feeder as well as the feed stability to handle even oiled work pieces. What's more, it's designed for low noise operation.

Features

1. Stable parts feeding
The special rotary disk reliably delivers problem parts (oiled pins and bolts) that conventional vibrator systems cannot handle easily. Parts are delivered to the outer circumference of the bowl's vibratory section.

2. Low-noise operation
The vibratory section is limited to the circumferential portion of the bowl, which orients or aligns the parts. This design contributes to low-noise operation.

3. Versatility
Because the orientating/aligning section is a vibratory type, it can handle complex parts as easily as conventional parts feeders.

4. High-speed parts feeding
The speed of the rotary disk can be adjusted as desired to accommodate specific types of work pieces. What's more, the vibration angle of the vibratory section on the circumference can be adjusted to a near-horizontal orientation with the installation of an appropriate leaf spring. As a result, the work pieces can be oriented/aligned at higher speeds.

Applications and compatible work pieces

- Metal parts such as oiled pins and bolts
- General mechanical components (metal or plastic) and automotive components

◆Accommodates the same maximum allowable work piece size as the conventional Model N25 and N40.

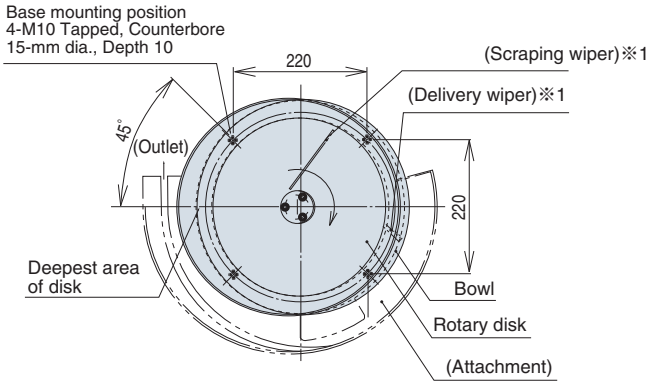
◆Does not accommodate miniature work pieces (those measuring less than 4 mm in general) or thin work pieces (those measuring less than 3 mm in thickness in general)

Specifications

Model and size		N25				N40	
Part No.		K-UP050A	K-UP051A	K-UP052A	K-UP053A	K-UP071	K-UP072
Power supply/rated current		AC100V / 4.5A		AC200V / 2.4A		AC200V /3.8A	
Direction of rotation		Clockwise	Counterclockwise	Clockwise	Counterclockwise	Clockwise	Counterclockwise
Vibratory drive unit		K-N25RM1	K-N25LM1	K-N25RM2	K-N25LM2	K-N40RM4	K-N40LM4
Vibration frequency (for ref.)		6000 pieces/min / 7200 pieces/min				3000 pieces/min / 3600 pieces/min	
Disk rotation speed		1 to 20 rpm variable				3.75 to 18 rpm variable	
Mass (including bowl)		52kg				110kg	
Bowl outer diameter/mass		ϕ357/3kg				ϕ509/7kg	
Standard capacity of bowl		1.5L				4L	
Applicable controller	Vibratory section	K-ECH45		K-ECF25		K-ECH45	
	Rotary section	K-UE251		K-UE261		K-UE270	
Protection		Motor overload protection and others					

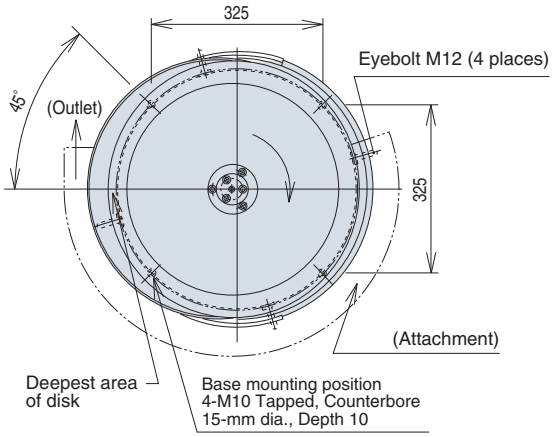
Structure and dimensions

For N25 (K-UP050 and K-UP052) For CW rotation



Feeders for CCW direction (K-UPO51 and K-UPO53): Symmetrically opposite

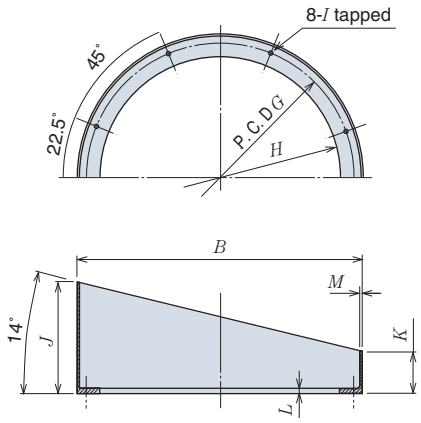
For N40 (K-UPO71) For CW rotation

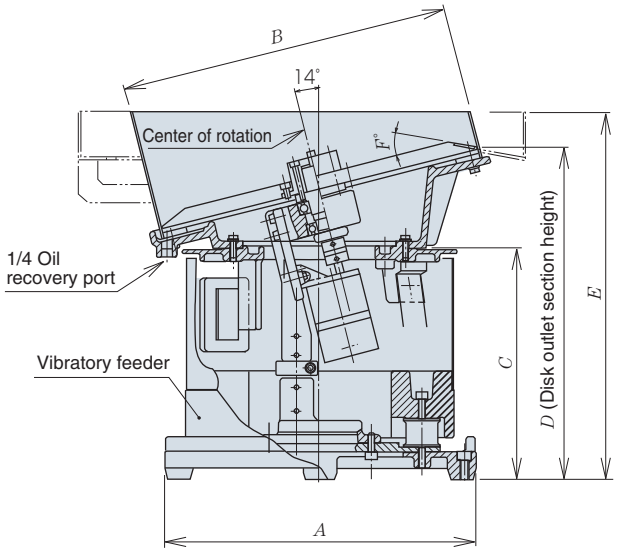


Feeders for CCW direction (K-UP072): Symmetrically opposite

Bowl for N25: K-P1510 for N40: K-P1571

(Included with the vibratory drive unit)

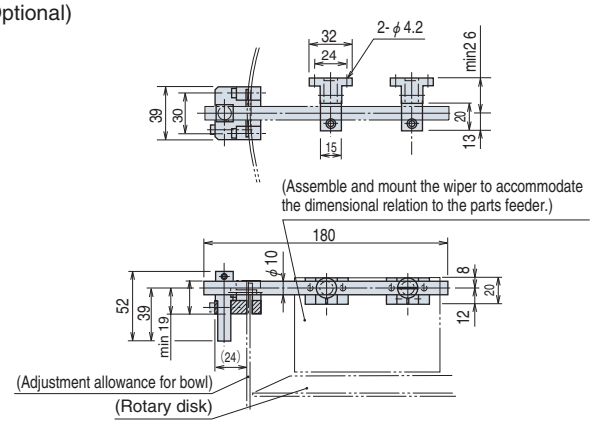




	For N25	For N40
A	ϕ330	ϕ490
B	ϕ357	ϕ509
C	245	266
D	354	422
E	390	458
F	24°	20°
G	334	484
H	ϕ300	ϕ450
I	M6	M8
J	140	185
K	51.2	58.8
L	6	8
M	2	3

Wiper mounting unit (K-UP060)

(Optional)



SMD feeder

Configured with an HF Series High-Frequency Bowl Feeder and an HS series Linear Feeder, the SMD Feeder rapidly orients/aligns standard chip components and feeds them to an inspection device, taping machine or the like.

The linear feeder section has been improved and now incorporates an innovative super-high-speed feeding device.

Features

1. A new design eliminates the possibility of work pieces jamming at the relay point between the bowl and the chute, significantly improving equipment availability.
2. Provides super-high-speed and high-precision parts feeding (up to 3,500 units of R1005 chips per minute, or 5,500 units of C0603 chips per minute).
3. More compact design - The floor space requirement is no more than 70% that of **NTN**'s conventional equipment for feeding chip resistors.
4. The unique system for orienting/aligning parts does not use compressed air (for feeding chip capacitors), thus helping to prevent possible damage to chip components.

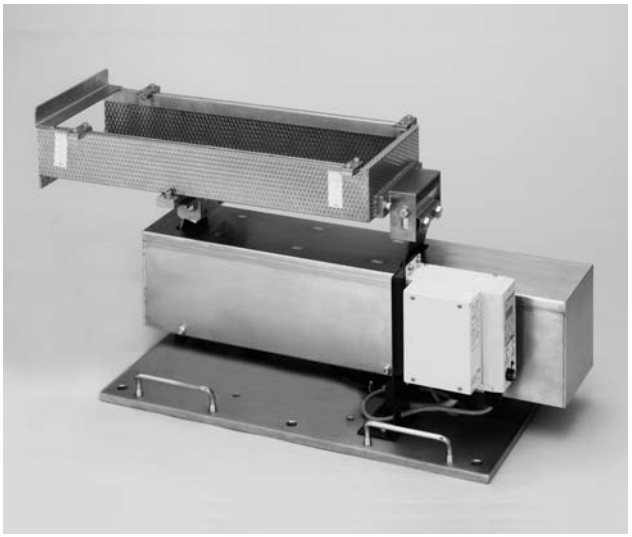
Typical applicable work pieces and specifications

	Chip resistor specifications	Chip capacitor specifications
Applicable work pieces	Chip resistor (involving head/tail orientation) R0603, R1005	Chip capacitor C0603, C1005 (not involving head/tail or front/back orientation) Chip inductor L0603, L1005 (not involving head/tail or front/back orientation)
Typical orientation/ alignment capabilities	Max. 3,000 chips/min (R0603) Max. 3,500 chips/min (R1005)	Max. 5,500 chips/min (C0603) Max. 5,000 chips/min (C1005)
Power supply	Single-phase 100 V, 50/60 Hz	
Compressed air supply	0.1MPa (1kg/cm^2)	————
Feeder dimensions	400mm×160mm×190mm	300mm×165mm×150mm

※The above data reflect typical applications.
The equipment is capable of feeding other miniature work pieces. For details, refer to CAT. Nos. 7020-Ⅱ/E.

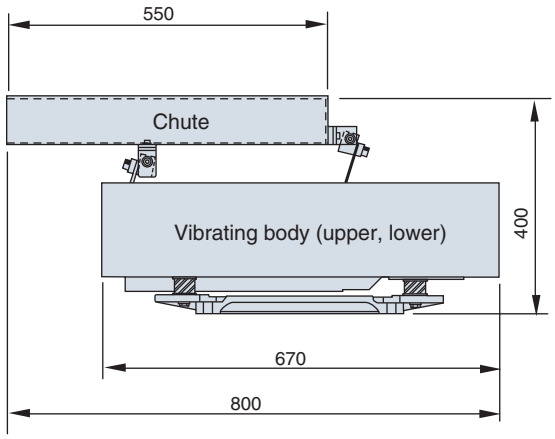
High Speed Linear Feeder

The use of a “High Amplitude Spring Mechanism ” to increase amplitude higher over standard linear feeders allows transportation of various types of foodstuff or work pieces that absorb vibrations, complete with an energy-saving design.



Features

1. **Large amplitude**
   The High Amplitude Spring Mechanism allows high speed transportation of foodstuff or work pieces that absorb vibrations.
2. **Energy savings**
   The use of the High Amplitude Spring Mechanism mean magnets with high magnetic forces are no longer needed, while also retaining the same low power consumption as standard models.
3. **Stability**
   Changing both the front and rear side amplitude springs individually limits variations in transportation of the entire chute for more stable supply.



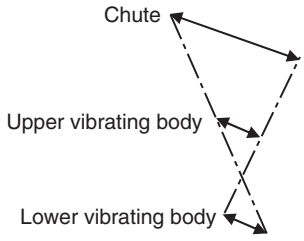
Applicable work, specification examples

Applicable work	**Various kinds of foods, such as pasted food, side dishes of lunch box, ingredients of hodgepodges, etc.**
Maximum amplitude	**3～4mm**
Power source	**Single-phase 200 V, 50/60 Hz**
Product dimensions	**Overall length 800×width 250×height 400 mm**
Product weight	**Approximately 30 kg**

※This product is individually designed, so for details contact **NTN** Engineering .

Operating philosophy

The upper vibrating body and chute vibrate in the same phase by adjusting the frequency



Spring Untangling Feeder

The spring untangling feeder, compact and self-contained, can reliably feed springs, simultaneously untangling coil springs that often become entangled.

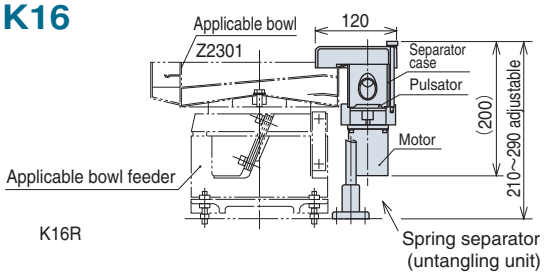
Features

1. Effective spring untangling
The mechanical actions of rotor blades (pulsator) allows simultaneous untangling of virtually any kind of springs.

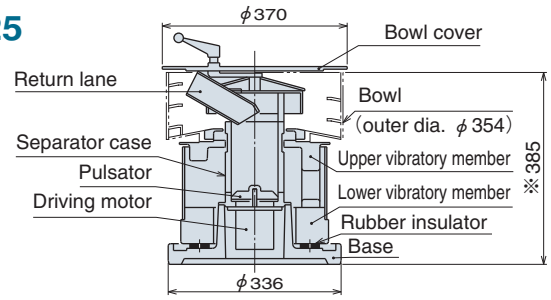
2. Compact construction
Since the spring untangling mechanism of equipment (N25, N40 type) is incorporated in the unit, the outer dimensions are almost the same as those of standard series feeders, which overcomes the space problems associated with similar feeders from other companies.

3. Highly cost-effective
By simplified manufacture and the use of fewer parts, a highly cost effective piece of equipment (N25, N40 type) has been developed, without sacrificing the performance of conventional feeders.

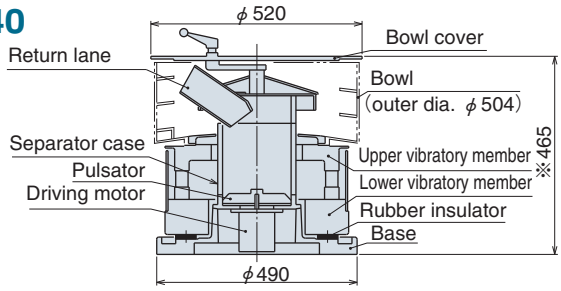
K16



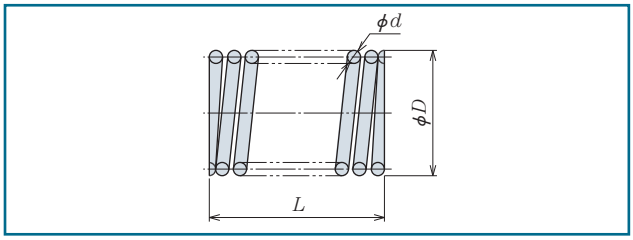
N25



N40



※The bowl cover (PVC) which prevents springs from jumping out is included as standard.
To determine the maximum height to the top plate, add approximately 80 mm to the respective heights of models N25 and N40 in the above diagram.



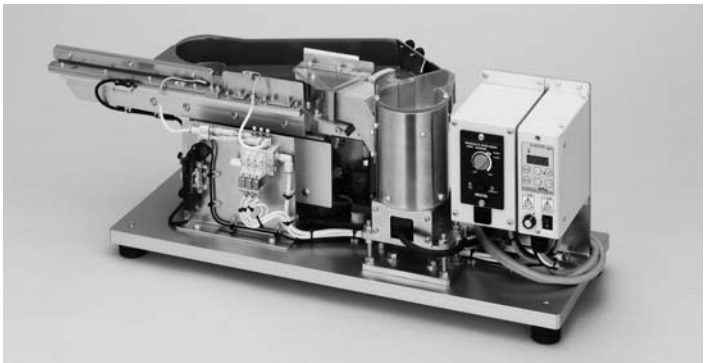
Model, size	Part number	Rated voltage (V)	Rated current (A)	Vibration speed ❶ (cycles/min)	Mass (kg)	Applicable bowl	Applicable controller	Applicable works (mm) ϕD	ϕd	L (max.)
(K16)	K-UP500	100	0.2	100/120	2.5	K-B16 R L Z2301	K-UE040 K-ECF25❷ K-ECH45	2~5	0.15~0.5	18
	K-UP501	200	0.1							
N25	K-N25 R L CM1	100	4.2		65	K-B25 R L ZD354		3.0~12	0.3~1.5	30
	K-N25 R L CM2	200	2.2							
N40	K-N40 R L CM4	200	4.1	50/60	140	K-B40 R L ZD503		8.0~20	0.8~2.0	45

Remark 1) Bowl attachments are estimated separately. Remark 2) To accurately determine if particular springs can be reliably untangled, a confidence test using actual work pieces is necessary.
Remark 3) The sorting function operates pneumatically except for certain types of work pieces.

❶ Refer to pages 13 through 19 in the section on "Bowl feeder dimensions and specifications."
❷ Always attach the special motor control unit (K-UE040). For details, contact **NTN** Engineering.

Monodrive Two-way Feeder
with The Separation Mechanism for Tangled Springs

Adding the Separation Mechanism for Tangled Springs to NTN's proprietary Monodrive Two-way Feeder helps save space for more stable feeding!



Features

1. Space-saving
The combination of the MD2 feeder and spring separator gives the entire device a more compact design.

2. Stable feeding
The spring separator disassembles tangled work pieces, and can arrange work into the same orientation with subsequent attachments for more stable feeding.

3. Ideal for small lot, high variety production
The use of the MD2 feeder allows work pieces within the feeder to be checked easily by eye, and is compatible with high variety production by simply replacing the final output block.

4. Additional functions
A photoelectric sensor uses the controller service power supply (DC 24 V, 200 mA) to detect work pieces and operate a solenoid valve.

- Full detection for air-overflow
  ⇒ surplus parts transported into the feeder
- Reverse spray with air with block detection
  ⇒ blocked work pieces transported into the feeder

Applicable work

Used body	Applicable work		
	Outer diameter	Wire diameter	Length (maximum)
MD10	ϕ 2.0～5.0mm	ϕ 0.15～0.5mm	20mm
MD20	ϕ 5.0～10.0mm	ϕ 0.5～1.0mm	30mm

※This product is individually designed, so for details contact **NTN** Engineering.

Globalized parts feeder series

Features

1. Globalized products for use outside Japan

NTN strongly supports its clients' efforts to export to European and North American markets. Consequently, these products conform to European CE marking and have acquired NRTL certification from the U.S.A. (which also conforms to the corresponding Canadian certification through the U.S.A.-Canada reciprocal-certification system).

2. A diverse product line

NTN globalized products feature a wide-ranging product line encompassing bowl feeders, linear feeders and standalone auxiliary hoppers.

Table of globalized products (as of October 2012)

		Globalized product part No.	Part No. of product dedicated to Japanese market
Bowl feeder	K16	K-K16R（L）Y2	K-K16R（L）32
	N25	K-N25R（L）ZM2	K-N25R（L）M2
		K-N25R（L）ZF2	K-N25R（L）F2
		K-N25R（L）ZT2	K-N25R（L）T2
		K-N25R（L）ZH2	K-N25R（L）H2
		K-N25R（L）YM2	K-N25R（L）AM2
		K-N25R（L）YF2	K-N25R（L）AF2
		K-N25R（L）YT2	K-N25R（L）AT2
		K-N25R（L）YH2	K-N25R（L）AH2
		K-N25R（L）WM4	K-N25R（L）M4
		K-N25R（L）WF4	K-N25R（L）F4
		K-N25R（L）WT4	K-N25R（L）T4
		K-N25R（L）WH4	K-N25R（L）H4
	N40	K-N40R（L）ZM2	K-N40R（L）M2
		K-N40R（L）ZT2	K-N40R（L）T2
		K-N40R（L）ZH2	K-N40R（L）H2
		K-N40R（L）ZM4	K-N40R（L）M4
		K-N40R（L）ZF4	K-N40R（L）F4
		K-N40R（L）ZT4	K-N40R（L）T4
		K-N40R（L）ZH4	K-N40R（L）H4
		K-N40R（L）YM2	K-N40R（L）AM2
		K-N40R（L）YT2	K-N40R（L）AT2
		K-N40R（L）YH2	K-N40R（L）AH2
		K-N40R（L）YM4	K-N40R（L）AM4
		K-N40R（L）YF4	K-N40R（L）AF4
		K-N40R（L）YT4	K-N40R（L）AT4
		K-N40R（L）YH4	K-N40R（L）AH4
Bowl feeder	N40・1	K-N40R（L）WM4	K-N40R（L）1M4
		K-N40R（L）WF4	K-N40R（L）1F4
		K-N40R（L）WT4	K-N40R（L）1T4
		K-N40R（L）WH4	K-N40R（L）1H4
	G50・1	K-G50R（L）ZM4	K-G50R（L）1M4
		K-G50R（L）ZG4	K-G50R（L）1G4
		K-G50R（L）ZT4	K-G50R（L）1T4
Linear feeder	S10	K-S10Z2	K-S10B2
		K-S10Y2	K-S10C2
	S20	K-S20Z2	K-S20B2
		K-S20Y2	K-S20C2
		K-S20W4	K-S20B4
		K-S20V4	K-S20C4
	S30	K-S30Z4	K-S30B4
		K-S30Y4	K-S30C4
Hopper	V01	K-V01SZ4	K-V01S4
	V03	K-V03SZ4	K-V03S4
	V06	K-V06SZ4	K-V06S4

Notes

1. The specifications for vibratory driving units for globalized products (rated voltage, current, leaf spring, mass, external dimensions, mounting dimensions, etc.) are the same as those of units intended for the Japanese market. For the specifications of a particular globalized product, see the specifications for the part No. intended for the Japanese market.
2. For applicable controllers, see page 67.

Notes

1. The CE marking acquisition process for a particular product includes a review of the final product and requires the submission of a self-declaration of conformity. If the specifications or appearance of the **NTN** parts feeder differs from that of the original parts feeder shipped from **NTN** because the unit has been incorporated into a system or has been modified by tooling, the client who has modified or is intending to export the system that has incorporated the parts feeder must submit a self-declaration of conformity for the entire system to be exported.
2. Controllers and vibratory driving units are tested in combination as a set (particularly for the EMC test). Conformity with CE marking and NRTL certification becomes invalid if the **NTN** globalized product is combined with an **NTN** product intended for the Japanese market or with a product from another manufacturer.
3. Post-processed products including bowls, tooling (aligning/orienting mechanisms) and the like are outside the scope of **NTN**'s responsibility. A client who intends to export such products is responsible for undertaking the review and submitting a self-declaration for these products.

Important: Conformity with CE marking and NRTL certification can be rendered invalid if the NTN globalized product is used in certain environments. For further information, contact NTN Engineering.
The products listed on this page do not conform to the RoHS Directives.

Globalized controllers

Features

1. Globalization
These products conform to European CE marking and have acquired NRTL certification from the U.S.A. (which also conforms to the corresponding Canadian certification through the U.S.A.-Canada reciprocal-certification system).
This product cannot be combined with products that conform to the RoHS Directives.

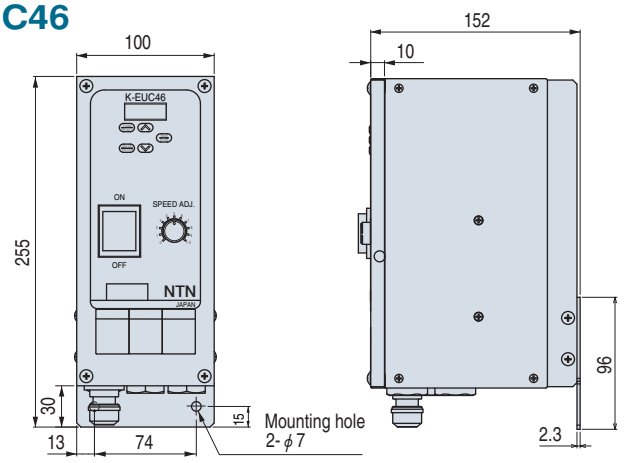
2. Microcomputer control variable frequency function
The voltage and the frequency are digitally displayed to enable easy setting and reproduction of optimum amplitude.

3. Constant voltage function
To ensure stable feeding of parts, the output voltage is maintained at a constant level even when the supply voltage fluctuates.

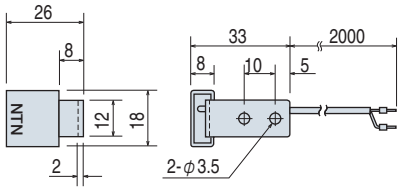
4. Constant amplitude function (Option)
With addition of the optional vibration sensor (K-P1369), constant amplitude functions of the products can be used for highly accurate and stable feed of work pieces.

Globalized controllers

K-EUC46



Vibration sensor K-P1369 (optional)



When extending the lead wire, use a shielding wire.

Part No.	Control functions	Control capacity	Applicable parts feeders
K-EUC46	External control + synchronized operation (+ constant amplitude control ❶)	4.0A	All models of **NTN** globalized parts feeders (See page 66.)

❶ For using the constant amplitude function, the optional vibration sensor K-P1369 is required.
For details about control functions and applicable parts feeders, contact **NTN** Engineering.

Model	K-EUC46
Supply voltage and frequency	Single-phase, 200-230 VAC10%, 50/60 Hz
Input current (inrush current)	5 A (70 Ap max., fist 1 cycle)
Control-drive system	Microcomputer control sine wave PWM method
Control capacity	Max. 4 A (effective value, continuous operation)
Soft start function	Available (variable time setting)
Constant voltage function	Output voltage remains within 3% in the event of a 10% variation in supply voltage. ❶
Constant amplitude function (optional)	Amplitude variation remains within 3% under a 10% variation in supply voltage or work piece mass. ❷
External control input	The parts feeder can be started or stopped with an external signal (polarized). Control with a PNP transistor is also possible.
Operation signal output	This signal is output to an external device to signal that auto operation is in progress (relay contact).
Mass	About 3.5 kg

❶ When the output voltage is set from 60 to 170 V.
❷ This is a representative value obtained when the output voltage setting falls in the range of 100 to 170 V. Note that the constant amplitude performance can vary depending on the adjustment of the spring on the feeder.

Caution: The environment of use may mean the product is not applicable. For details, contact NTN Engineering.
This product is to be used in an environment with an industrial power supply. Do not connect it to ordinary power supplies such as residential products.

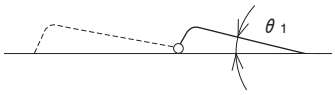
Flexible feeder

Adoption of the Z spring in place of the standard spring on **NTN** parts feeder can provide optimum vibratory characteristics that are ideally suited to the physical properties of specific product parts and further expanded applications.
The Z springs are fully compatible with the vibratory drive units in the list below. Thus, the standard springs in your parts feeder can be replaced with the Z springs without any change in spring setting dimensions.

To set the feeder for a high speed application, fit the spacer on the upper end of the Z spring fitting part, as shown in Fig.1.
When feeding oil-contaminated pieces, or when parts feeding is sluggish due to a steep track slope, reverse the Z springs, and fit the spacer at the lower end of the Z spring fitting part as shown in Fig.3.
In this manner, any of three kinds of vibratory angles including the standard angle can be selected.

● For high-speed feeding

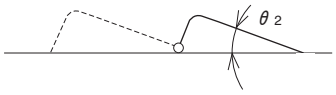
Feeding state



If the parts feeder can be adjusted to a lower spring setting angle, the jump stroke of the parts fed will be smaller, and consequently, feeding can be made smoother and faster.

● (Standard)

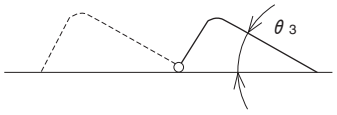
Feeding state



If the parts feeder is adjusted for a standard spring setting angle, its behavior will be intermediate between high-speed feeding and grade feeding. This setting will be suitable for virtually any standard product.

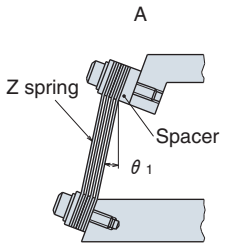
● For grade feeding

Feeding state



If the parts feeder is adjusted for a larger spring setting angle, the friction between the parts fed and the feeding surface will be greater. Consequently, grading will tend to be more stable, even at low speed.

Fig.1



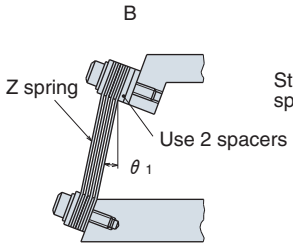


Fig.2

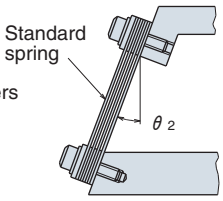
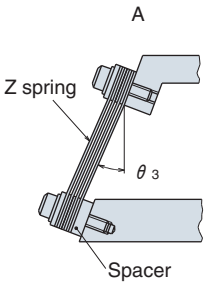
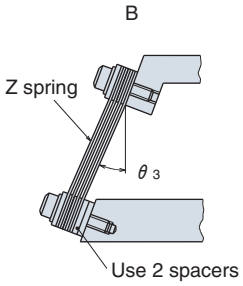


Fig.3



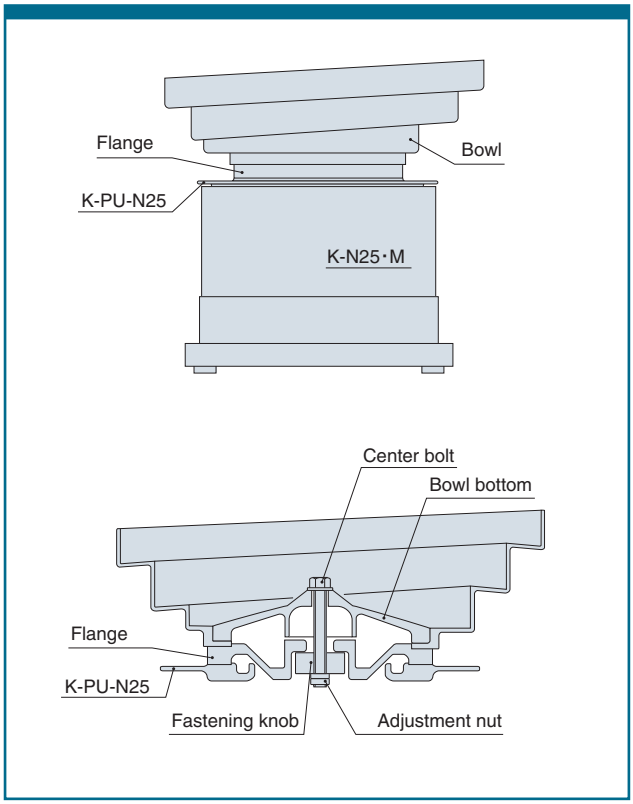


Model and size of parts feeder	Spring setting angle (°)			Part number of Z spring	Part number of spacer	Standard number per unit.	
	θ 1	(θ 2)	θ 3			Z spring (pcs.)	Spacer (pcs.)
K14	12	(20)	28	K-PLS2-50×9-1	K-P0430	20	4
K16	15	(22)	29	K-PLS2-67×12-2	K-P0427	20	4
N25	8	(15)	22	K-PLS2-86×20-1	K-P0426	18	3
N40(Full wave)	8	(15)	22	K-PLS2-86×20-1	K-P0426	24	4
K20(Half wave) ※2	※1	(15)	25	K-PLS2-116×20-2	K-P0408, K-P0426	9	3 Each
N40(Half wave) ※2	※1	(15)	25	K-PLS2-116×20-2	K-P0408, K-P0426	24	4 Each
G63 ※3	13	(20)	27	K-PLS2-250×70-1	K-P0423	16	16
S20	13	(20)	27	K-PLS4-70×12-1	K-P0411	16	2
S30	9	(15)	21	K-PLS4-86×15-1	K-P0431	10	2

※1 High-speed type (θ =5) of K20(Half wave) and N40 (Half wave) are unavailable.
※2 For K20(Half wave) and N40 (Half wave), fit two spacers of different thickness on the Z spring fitting part shown in Fig.1B and 3B.
※3 For G63, fit two spacers of same thickness on the Z spring fitting as shown in Fig.1B and 3B.

One-touch bowl clamp

With this bowl mounting adaptor, you can easily mount or detach a bowl simply by turning one center bolt two or three turns. When used in conjunction with a microcomputer-based variable frequency controller, this clamp greatly reduces bowl replacement time.



■Features

(1) The bowl can be quickly and easily replaced with two or three turns of the center bolt.

(2) Because the components of the clamp are lightweight, all necessary attachments can be mounted on the bowl.

(3) This device can be used on a variety of solid or isolated bottom bowls. (It is compatible with **NTN**'s standard bowls.)

(4) The center bolt and fastening knob can be stowed in the rear of the bowl, allowing the bowl to be stored on a flatbed.

Part number	Applicable unit	Applicable bowl		
K-UT003 ❶	K-N25・M	Solid-bottom ❸ type for Model N25	K-B25$^{R}_{L}$ZF30, K-B25$^{R}_{L}$ZF301, K-B25$^{R}_{L}$ZF302,	Straight wall
K-UT006 ❷	———		K-B25$^{R}_{L}$ZF35, K-B25$^{R}_{L}$ZF351, K-B25$^{R}_{L}$ZF352,	
			K-B25$^{R}_{L}$KF35	Cone
K-UT004 ❶	K-N25・M	solated-bottom type for Model N25	K-B25$^{R}_{L}$CD33, K-B25$^{R}_{L}$CD39, K-B25$^{R}_{L}$CD391,	Cascade
K-UT007 ❷	———		K-B25$^{R}_{L}$ZD30, K-B25$^{R}_{L}$ZD35	Straight wall
			K-B25$^{R}_{L}$KD35	Cone
K-UT005	K-N25・M	(Adaptor for vibratory drive unit: Part for installation on K-PU-N25)		

❶ This is a part number for a set of parts comprising a one-touch bowl clamp.
❷ When more than one bowl is to be used, each additional bowl requires one set of parts of this part number.
❸ The bowl must be provided with a hole for the center bolt (12.2-13.0 mm diameter drill).

NTN parts feeder

Leaf spring, vibration isolating leaf spring

K- PLS 2 - 86 × 20

- Thickness（mm×10）
- Spring hole pitch
- Number of spring holes
- Leaf spring code

Leaf spring

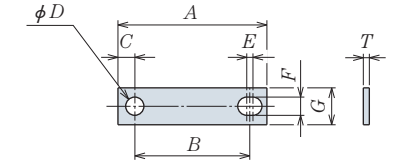


Fig.1

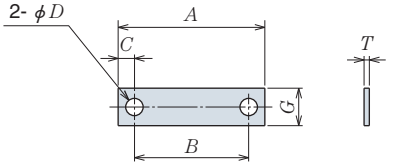


Fig.2

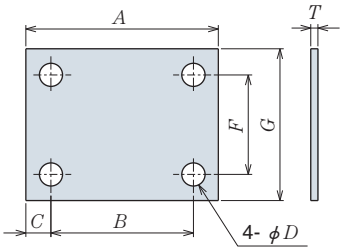
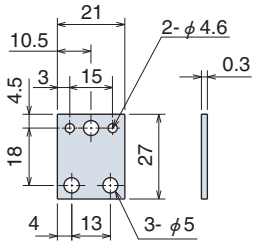


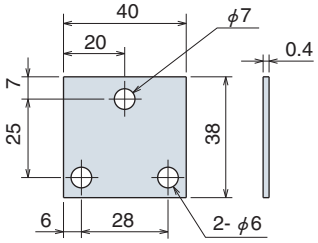
Fig.3

Vibration isolating leaf spring

For HS05
K-PLS5-18×3



For HS07
K-PLS3-25×4



Part number	Fig.	Dimensions（mm）								Applicable unit
		A	B	C	D	E	F	G	T	
K-PLS4-32×3.5	3	25	14	5.5	5.5	—	32	44	0.35	Rubber insulator for S051 and S082
K-PLS2-35×5	1	46	35	5	5.1	2	5.2	10	0.5	K10, S051, S05A, S082
K-PLS2-35×9									0.9	HS05
K-PLS2-35×12									1.2	HF10
K-PLS2-50×7	2	64	50	7	8	—	—	14	0.7	K14
K-PLS2-50×9									0.9	
K-PLS2-50×20					7	—	—	14	2.0	HF14
K-PLS2-67×12-1		87	67	10	10	—	—	20	1.2	K16
K-PLS2-67×15					9	—	—	20	1.5	L20
K-PLS2-67×23					10	—	—	20	2.3	HF16
K-PLS2-86×15		106	86	10	12.2	—	—	35	1.5	V01, SV01, SV03
K-PLS2-86×20									2.0	N25, N40（Full wave）
K-PLS2-116×20		136	116	10	12.2	—	—	35	2.0	N32, N40（Half wave）
K-PLS2-116×35-1					13.5				3.5	K20（Full wave）
K-PLS2-116×40					12.2				4.0	N32（Full wave）
K-PLS2-150×25		174	150	12	14.2	—	—	40	2.5	N40・1
K-PLS2-150×30									3.0	
K-PLS2-180×40		215	180	17.5	19	—	—	50	4.0	G50・1
K-PLS2-250×60		300	250	25	21	—	—	50	6.0	G63
K-PLS2-250×70									7.0	
K-PLS4-40×6	3	54	40	7	7	—	28	42	0.6	S10, HS07
K-PLS4-70×9		88	70	9	7	—	35	50	0.9	V72
K-PLS4-70×12									1.2	S20, M05
K-PLS4-86×15		106	86	10	10.5	—	50	80	1.5	S30, M10, SV06
K-PLS4-85×16		115	85	15	13	—	120	150	1.6	V01, V03, V04
K-PLS4-85×16-1		115	85	15	13	—	240	270	1.6	V06, V08
K-PLS4-125×30		155	125	15	13	—	330	360	3.0	V12

NTN parts feeder

Magnet

K- PMG - 2 1 3

- Number of bundled pieces
- Voltage (1: For 100 V, 2: For 200 V)
- Magnet size
- Magnet code

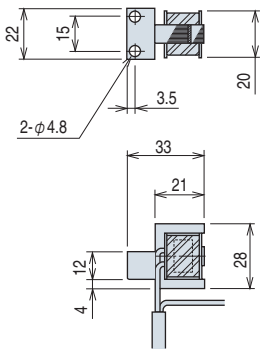


Fig.1

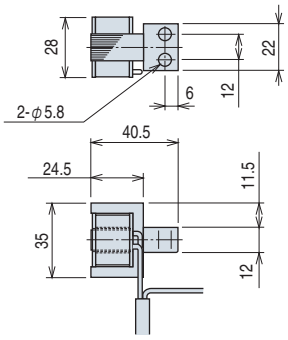


Fig.2

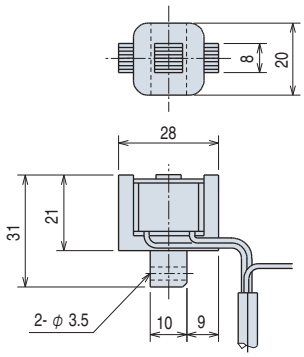


Fig.3

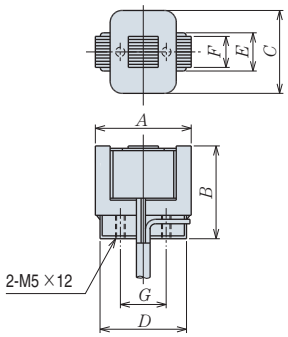


Fig.4

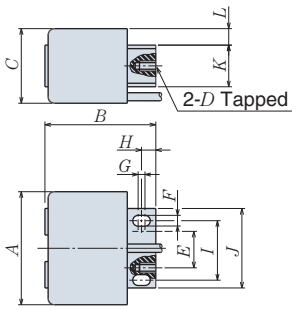


Fig.5

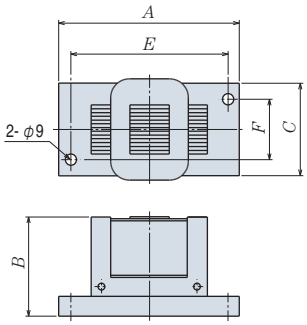


Fig.6

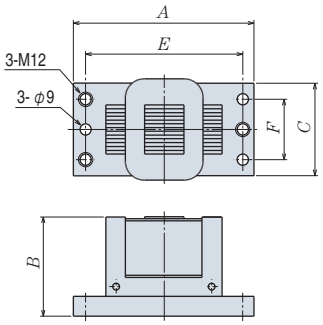


Fig.7

Part number	Fig.	Dimensions (mm)												Dimensions (mm)	Mass (kg)
		A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*K*	*L*		
K-PMG-011-5	1	—	—	—	—	—	—	—	—	—	—	—	—	S0511, S05A1	0.1
K-PMG-021-2		—	—	—	—	—	—	—	—	—	—	—	—	S0512, S05A2	0.1
K-PMG-017-3	2	—	—	—	—	—	—	—	—	—	—	—	—	S0821	0.2
K-PMG-027		—	—	—	—	—	—	—	—	—	—	—	—	S0822	0.2
K-PMG-011-4	3	—	—	—	—	—	—	—	—	—	—	—	—	HS05	0.1
K-PMG-017-1	4	41	39	31.5	36	16	13	20	M5×12	—	—	—	—	HS07	0.3
K-PMG-017-2		41	39	31.5	36	16	13	20	M5×12	—	—	—	—	HF14	0.4
K-PMG-027-1		41	39	31.5	36	16	13	20	M5×12	—	—	—	—	SV1, SV3	0.3
K-PMG-217-2		54	48	40.5	48	25	20.5	28	M6×12	—	—	—	—	HF16	1.0
K-PMG-1$\frac{1}{2}$1-1	5	58	50	43	—	—	6.5	0	6	24	36	16	12	K10, S10, M05, V71	0.4
K-PMG-2$\frac{1}{2}$1		78	75	48	—	—	7	4	10	37	54	22	10	S20, L20, M10, SV01, SV03	1.0
K-PMG-2$\frac{1}{2}$1-1		78	75	48	M6×12	22	7	4	10	37	54	22	10	K14	0.9
K-PMG-2$\frac{1}{2}$3		78	75	48	—	—	7	4	10	37	54	22	10	N25 3 pcs. bundled	3.0
K-PMG-311-1		90	87	60	—	—	8.5	5	11	44	66	33	11	V01～V08	1.7
K-PMG-321		90	87	60	—	—	8.5	5	11	44	66	33	11	S30, V01～V12, SV06	1.9
K-PMG-311-3		90	87	60	M6×13	28	8.5	5	11	44	66	33	11	K16	1.5
K-PMG-321-4		90	87	60	M6×13	28	8.5	5	11	44	66	33	11	K16	1.7
K-PMG-323		90	87	60	—	28	8.5	5	11	44	66	33	11	N32·2, half wave, 3 pcs. bundled	5.7
K-PMG-323-1		90	87	60	—	28	8.5	5	11	44	66	33	11	N32·2, full wave, 3 pcs. bundled	5.7
K-PMG-324		90	87	60	—	—	8.5	5	11	44	66	33	11	N40, N40•1 (4 pcs. bundled)	7.5
K-PMG-411-1	6	110	70	75	—	80	56	—	—	—	—	—	—	K20 100V, full wave	2.3
K-PMG-411-2														K20 100V, half wave	2.4
K-PMG-421-1														K20 200V, full wave	2.3
K-PMG-421-2														K20 200V, half wave	2.4
K-PMG-521	7	144	82	75	—	128	60	—	—	—	—	—	—	G63・2	4.5
K-PMG-521-1														G50・1	4.3

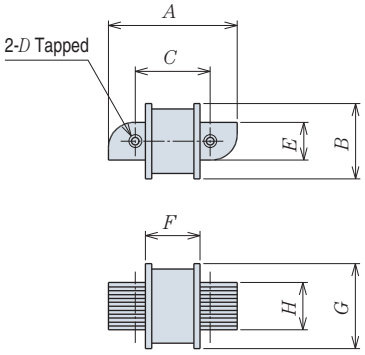
NTN parts feeder

F-shape magnet, rubber insulator, armature

K - PIR - 40

- PIR: Rubber insulator code
- 40: Rubber insulator outer dia.

F-shape magnet



Rubber insulator

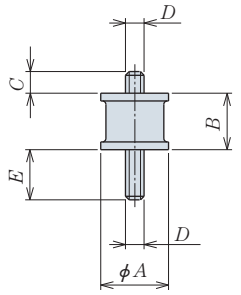


Fig.1

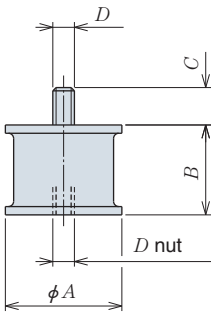


Fig.2

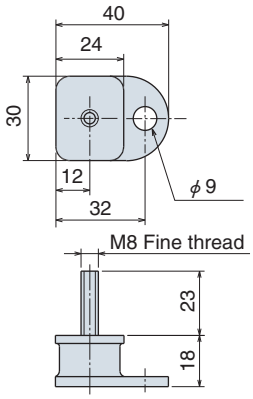


Fig.3

Part number	Dimensions (mm)								Applicable unit
	A	B	C	D	E	F	G	H	
K-PMG-119-1	58	34	34	M4	16.6	24	39	22	HF10

Part number	Fig.	Dimensions (mm)					Applicable unit
		A	B	C	D	E	
K-PIR-15	1	15	15	15	M5	15	K14
K-PIR-25	1	25	20	8	M6	18	K16, S10, S20, V72, SV01, SV03, SV1, SV3
K-PIR-302	3	—	—	—	—	—	HF10, HF14, HF16
K-PIR-40	2	40	30	13	M8	—	N25, S30, V01～V08, K20
K-PIR-50	2	50	40	17	M10	—	N32, N40, N40·1, G50, G63・2, V12

Armature

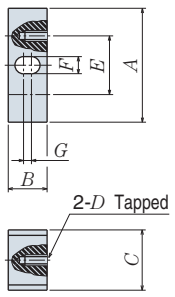


Fig.1

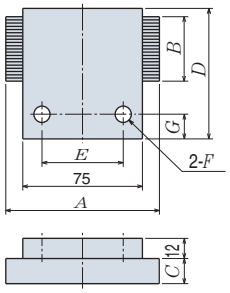


Fig.2

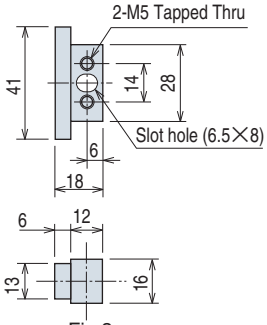


Fig.3

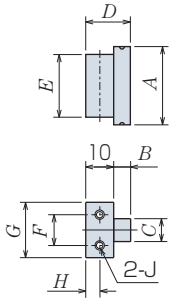


Fig.4

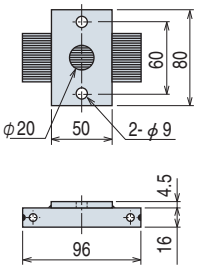


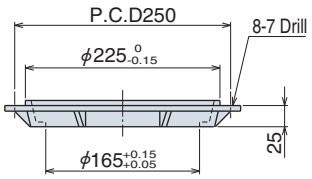
Fig.5

Part number	Fig.	Dimensions (mm)									Applicable magnet	Applicable unit
		A	B	C	D	E	F	G	H	I		
K-P0300	1	36	16	16	—	—	6.5	4	—	—	K-PMG-1$\frac{1}{2}$1-1	K10, S10, M05, V71
K-P0301		54	20	22	—	—	7	4	—	—	K-PMG-2$\frac{11}{23}$	N25, S20, L20, M10, SV01, SV03
K-P0302		66	22	33	—	—	8.5	5	—	—	K-PMG-311-1 K-PMG-321 K-PMG-32$\frac{3}{4}$, K-PMG-323-1	N32, N40, S30, V01～V12, SV06
K-P0303		54	20	22	M5×10	30	7	4	—	—	K-PMG-2$\frac{1}{2}$1-1	K14
K-P0317		66	22	33	M6×13	34	8.5	5	—	—	K-PMG-311-3, K-PMG-321-4	K16
K-P0310	2	105	60	17.5	100	40	ϕ12	15	—	—	K-PMG-521	G63·2
K-P0311	3	—	—	—	—	—	—	—	—	—	K-PMG-017-$\frac{1}{2}$	HF14, HS07, SV1, SV3
K-P0320	4	20.5	9	54	21	25	26	42	6	M6×15	K-PMG-217-2	HF16
K-P0315	4	28	4	8	13	22	11	20	3	M3×12	K-PMG-011-3	HS05
K-P0314	2	105	60	17.5	70	40	M10	35	—	—	K-PMG-521-1	G50·1
K-P0316	5	—	—	—	—	—	—	—	—	—	K-PMG-411-$\frac{1}{2}$, K-PMG-421-$\frac{1}{2}$	K20
K-P0318	—	—	—	—	—	—	—	—	—	—	K-PMG-011-5, K-PMG-021-2	S05
K-P0319	—	—	—	—	—	—	—	—	—	—	K-PMG-017-3, K-PMG-027	S08

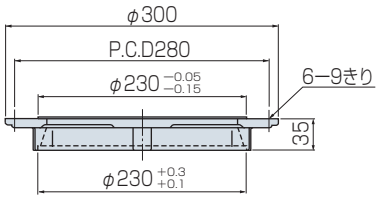
Dimensions of parts feeder peripherals

Bowl mounting flange

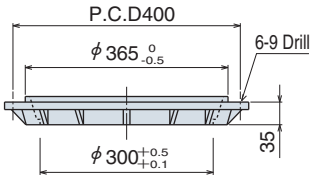
K-P0100 — **For N25**
Material; Aluminum



K-P0129 — **For N32**
Material; Aluminum

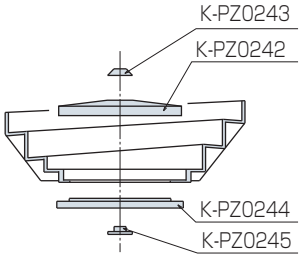


K-P0101 — **For N40**
Material; Aluminum

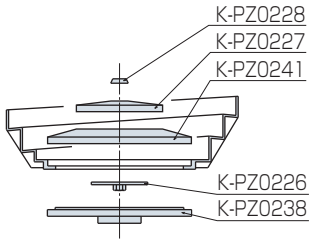


Bowl center fixture

K-UT001 — **For B25**
Material; Aluminum
(SS400)
(SUS303)

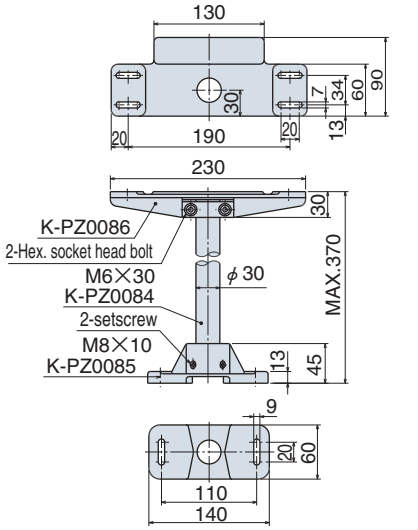


K-UT002 — **For B40**
Material; Aluminum
(SS400)
(SUS303)

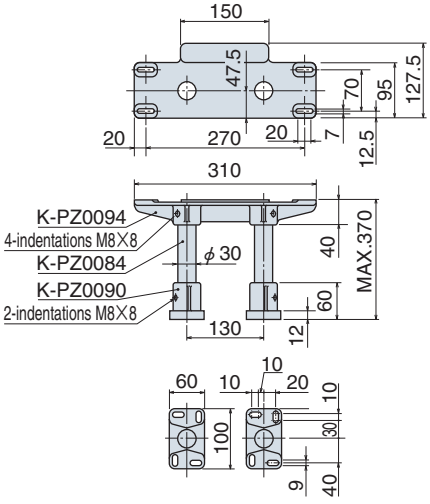


Narrow type mount

K-UH003 — **For S10**
Material; FC200



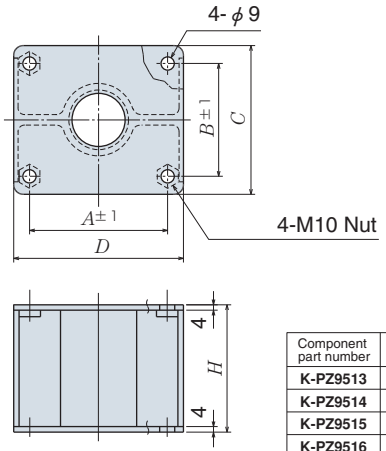
K-UH006 — **For S20**
Material; FC200



Dimensions of parts feeder peripherals

Fixed type mount

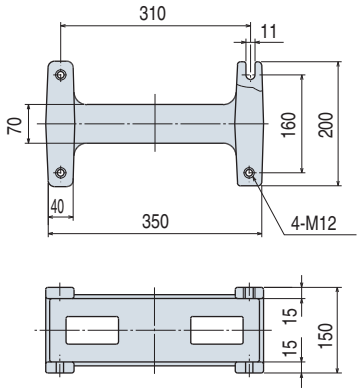
For S10, 20
Material; SS400



Unit (mm)

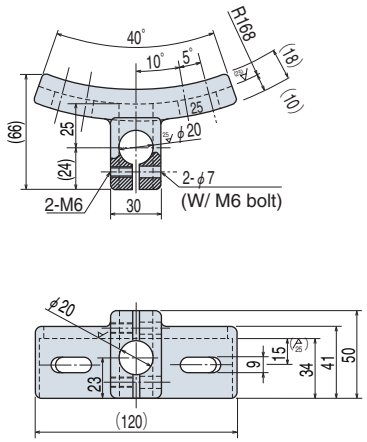
Component part number	H	A	B	C	D	Applicable to
K-PZ9513	100	110	90	120	140	S10
K-PZ9514	150	110	90	120	140	S10
K-PZ9515	200	110	90	120	140	S10
K-PZ9516	70	155	135	160	185	S20
K-PZ9517	110	155	135	160	185	S20
K-PZ9518	150	155	135	160	185	S20

K-PZ0530 **For S30**
Material; FC200

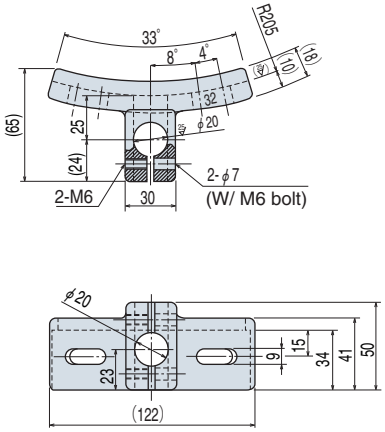


Stay mounting parts

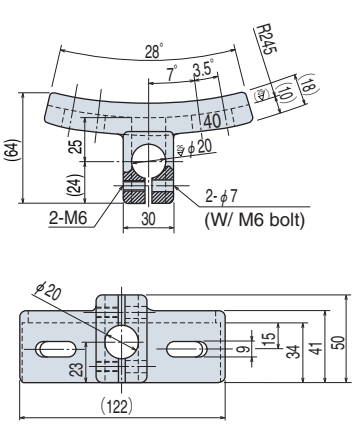
K-PZ0501 **For N25**
Material; FC200



K-PZ0568 **For N32**
Material; FC200

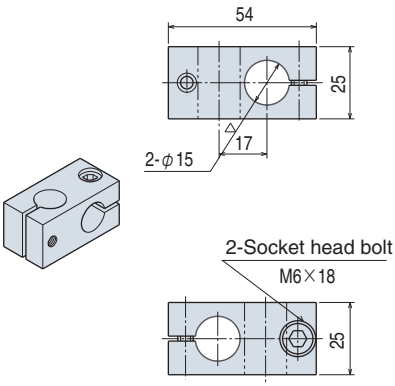


K-PZ0511 **For N40**
Material; FC200

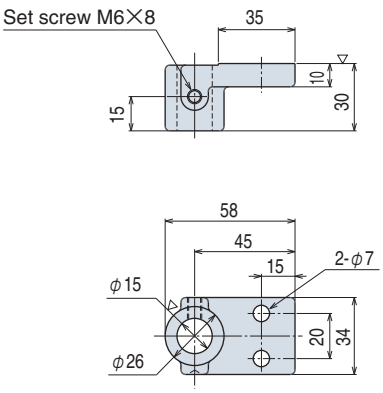


Stay mounting parts

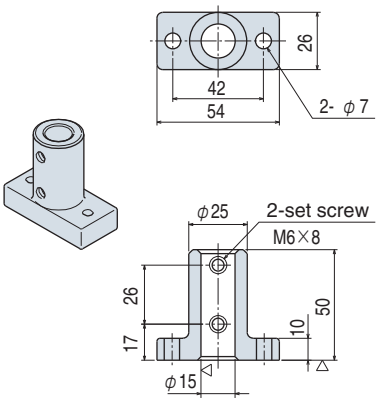
K-P1153 **For φ15**
Material; Aluminum



K-P1152 **For φ15**
Material; FC200

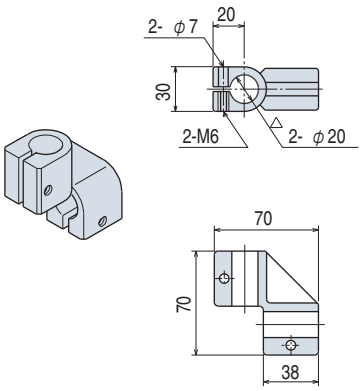


K-PZ0509 **For φ15**
Material; ZDC2

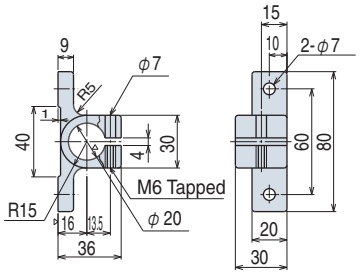


Stay mounting parts

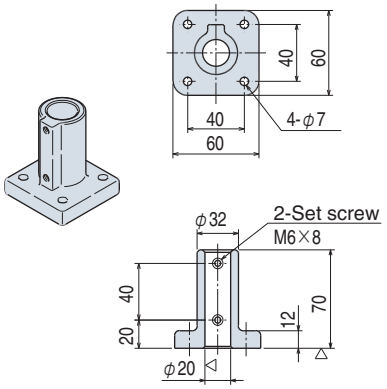
K-PZ0503 — For ϕ20, Material; FC200



K-PZ0504 — For ϕ20, Material; FC200

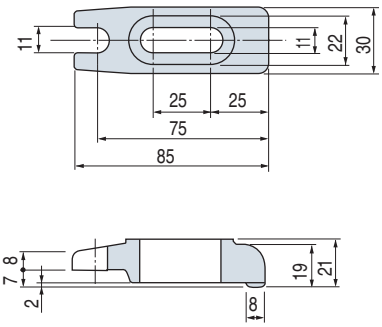


K-PZ0505 — For ϕ20, Material; FC200

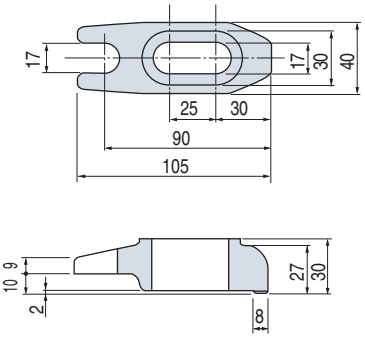


Clamps

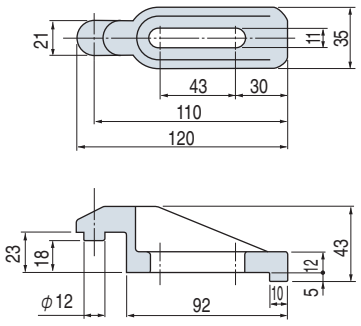
K-P0800 — For N25, Material; FCD50



K-P0801 — For N32, N40, G50, Material; FCD50



K-PZ0510 — For standard round base, Material; FCD50



Light grip and Sunline belt Part Nos.

Cascade bowl

	Applicable bowl	Light grip Part No.	Sunline belt Part No.
B16	B16RC2601	K-PZ0335	K-PZ0351
	B16LC2601	K-PZ0336	K-PZ0352
B20	B20RC3201	K-PZ8516	K-PZ8515
	B20LC3201	K-PZ8518	K-PZ8517
	B20RS3201	K-PZ8516	K-PZ8515
	B20LS3201	K-PZ8518	K-PZ8517
B25	B25RC$^{D}_{B}$33	K-PZ0200	K-PZ0353
	B25LC$^{D}_{B}$33	K-PZ0201	K-PZ0354
	B25RC$^{D}_{B}$39	K-PZ0202	K-PZ0355
	B25RC$^{D}_{B}$391	K-PZ0202	K-PZ0355
	B25LC$^{D}_{B}$39	K-PZ0203	K-PZ0356
	B25LC$^{D}_{B}$391	K-PZ0203	K-PZ0356
	B25RSD39	K-PZ0202	K-PZ0355
	B25RSD391	K-PZ0202	K-PZ0355
	B25LSD39	K-PZ0203	K-PZ0356
	B25LSD391	K-PZ0203	K-PZ0356
B32	B32RSD491	K-PZ8500	K-PZ8504
	B32LSD491	K-PZ8502	K-PZ8506
	B32RSF491	K-PZ8501	K-PZ8505
	B32LSF491	K-PZ8503	K-PZ8507
B40	B40RC$^{D}_{B}$54	K-PZ0204	K-PZ0357
	B40LC$^{D}_{B}$54	K-PZ0205	K-PZ0358
	B40RC$^{D}_{B}$58	K-PZ0206	K-PZ0359
	B40LC$^{D}_{B}$58	K-PZ0207	K-PZ0360
	B40RC$^{D}_{B}$64	K-PZ0208	K-PZ0361
	B40RC$^{D}_{B}$641	K-PZ0208	K-PZ0361
	B40LC$^{D}_{B}$64	K-PZ0209	K-PZ0362
	B40LC$^{D}_{B}$641	K-PZ0209	K-PZ0362
	B40RSD54	K-PZ0204	K-PZ0357
	B40LSD54	K-PZ0205	K-PZ0358
	B40RSD58	K-PZ0206	K-PZ0359
	B40LSD58	K-PZ0207	K-PZ0360
	B40RSD64	K-PZ0208	K-PZ0361
	B40RSD641	K-PZ0208	K-PZ0361
	B40LSD64	K-PZ0209	K-PZ0362
	B40LSD641	K-PZ0209	K-PZ0362
B63	B63RC$^{D}_{B}$83	K-PZ0337	K-PZ0363
	B63LC$^{D}_{B}$83	K-PZ0338	K-PZ0364
	B63RSD83	K-PZ0337	K-PZ0363
	B63LSD83	K-PZ0338	K-PZ0364

Straight wall bowl

Upper stage: For bowl bottom
Lower stage: For bowl track

	Applicable bowl	Light grip Part No.	Sunline belt Part No.
B14	B14RZ2001	K-PZ0348 K-PZ0349	K-PZ0365 K-PZ0366
	B14LZ2001	K-PZ0350 K-PZ0349	K-PZ0367 K-PZ0366
B16	B16RZ2301	K-PZ0296 K-PZ0297	K-PZ0368 K-PZ0369
	B16LZ2301	K-PZ0298 K-PZ0297	K-PZ0370 K-PZ0269
	B16RZ2302	K-PZ0246 K-PZ0247×2	K-PZ0371 K-PZ0372×2
	B16LZ2302	K-PZ0248 K-PZ0247×2	K-PZ0373 K-PZ0372×2
	B16RZ2501	K-PZ0299 K-PZ0300	K-PZ0374 K-PZ0375
	B16LZ2501	K-PZ0301 K-PZ0300	K-PZ0376 K-PZ0375
B20	B20RZ2801	K-PZ8519 K-PZ8520	K-PZ8522 K-PZ8523
	B20LZ2801	K-PZ8521 K-PZ8520	K-PZ8524 K-PZ8523
	B20RZ3003	K-PZ0302 K-PZ0303	K-PZ0377 K-PZ0378
	B20LZ3003	K-PZ0304 K-PZ0303	K-PZ0379 K-PZ0378
B25	B25RZ$^{D}_{F}$30	K-PZ0302 K-PZ0303	K-PZ0377 K-PZ0378
	B25LZ$^{D}_{F}$30	K-PZ0304 K-PZ0303	K-PZ0379 K-PZ0378
	B25RZ$^{D}_{F}$301	K-PZ0249 K-PZ0250×2	K-PZ0380 K-PZ0381×2
	B25LZ$^{D}_{F}$301	K-PZ0251 K-PZ0250×2	K-PZ0382 K-PZ0381×2
	B25RZ$^{D}_{F}$302	K-PZ0302 K-PZ0303×2	K-PZ0377 K-PZ0378×2
	B25LZ$^{D}_{F}$302	K-PZ0304 K-PZ0303×2	K-PZ0379 K-PZ0378×2
	B25RZ$^{D}_{F}$35	K-PZ0305 K-PZ0306	K-PZ0383 K-PZ0384
	B25LZ$^{D}_{F}$35	K-PZ0307 K-PZ0306	K-PZ0385 K-PZ0384
	B25RZ$^{D}_{F}35\frac{1}{2}$	K-PZ0305 K-PZ0306×2	K-PZ0383 K-PZ0384×2
	B25LZ$^{D}_{F}35\frac{1}{2}$	K-PZ0307 K-PZ0306×2	K-PZ0385 K-PZ0384×2
B32	B32RZ$^{D}_{F}$401	K-PZ8508 K-PZ8509	K-PZ8511 K-PZ8512
	B32LZ$^{D}_{F}$401	K-PZ8510 K-PZ8509	K-PZ8513 K-PZ8512
B40	B40RZ$^{D}_{F}$45	K-PZ0308 K-PZ0309	K-PZ0386 K-PZ0387
	B40LZ$^{D}_{F}$45	K-PZ0310 K-PZ0309	K-PZ0388 K-PZ0387
	B40RZF45$\frac{1}{2}$	K-PZ0308 K-PZ0309×2	K-PZ0386 K-PZ0387×2
	B40LZF45$\frac{1}{2}$	K-PZ0310 K-PZ0309×2	K-PZ0388 K-PZ0387×2
	B40RZ$^{D}_{F}$50	K-PZ0311 K-PZ0312	K-PZ0389 K-PZ0390
	B40LZ$^{D}_{F}$50	K-PZ0313 K-PZ0312	K-PZ0391 K-PZ0390
	B40RZ$^{D}_{F}50\frac{1}{2}$	K-PZ0311 K-PZ0312	K-PZ0389 K-PZ0390
	B40LZ$^{D}_{F}50\frac{1}{2}$	K-PZ0313 K-PZ0312	K-PZ0391 K-PZ0390
	B40RZF55	K-PZ0314 K-PZ0315×2	K-PZ0392 K-PZ0393×2
	B40LZF55	K-PZ0316 K-PZ0315×2	K-PZ0394 K-PZ0393×2
	B40RZF60	K-PZ0317 K-PZ0318×2	K-PZ0395 K-PZ0396×2
	B40LZF60	K-PZ0319 K-PZ0318×2	K-PZ0397 K-PZ0396×2

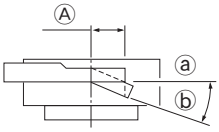
NTN Parts Feeder Estimate Request Sheet

For correct design and estimates, please complete the bold outlined sections, and supply three or more specimens of the work pieces you intend to feed, along with associated drawings for reference.

Company Name			
Address	Postal code		
Person in charge	(Department)	Tel No.	
	(Name)	Fax No.	
End user			
Required quantity		**Requested delivery date**	Date Month Year / /

	Name	Code	Contact person	Code
Operation				
Customer				
End user				

Work	Description/Material	／	
	Weight/Burr Foreign matter/ Residual liquid	g/Yes・No	Water-base Oil-base Rust prevention oil Cutting fluid Rinsing liquid
		Yes・No( ) ／ Yes No	
Aligning requirements	Feed rate	Max. pcs./min/line	m/min/line
		Normal pcs./min/line	m/min/line
		Min pcs./min/line	m/min/line
	No. of Feeding lines	Lines	Success rate %
	Allowable noise level	dB(A scale)	
Power supply	Voltage	100V・200V・ V	
	Frequency	Your site 50・60Hz	User's site 50・60Hz
	Frequency conversion Yes・No	Work responsibility	You・User・**NTN**
		Work site	Your site・User's site・**NTN**
Connected machines	Types	Assembling machine ・Processing machine ( )	
	Work capacity	Cycle time sec.	pcs .m/min
	Atmosphere	(Dust, mist) present (temperature, humidity) high	

Parts feeder specifications	Intended unit type K—		Commissioned to **NTN**
	Bowl	Type	Cascade・Straight wall・Cone・Dish・Commissioned to **NTN**
		Supplying direction	CW・CCW・Decided later
		Material	Al・Ss・Commissioned to **NTN**
		Inside treatment	Polished・Urethane rubber coated・Commissioned to **NTN**
	Control of feeding over **NTN** Your company	System	ⓐControl in the bowl
			ⓑPhotosensor or proximity sensor
		Sensor	Purchase: Your company・**NTN**
			Installation: Your company・**NTN**
			Control: Your company・**NTN**
	Attachment opening		ⓐHorizontal discharge ⓑDownward ˚discharge Ⓐ mm required

〔Remarks〕

Projected budget

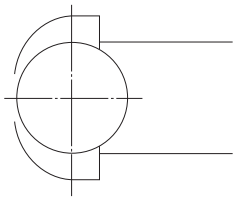
Estimation classification	1. Formal estimation	
	2. Rough estimation	
	3. Alignment judgment capability	
Requested reply date	／	

Receipt date	Date Month Year / /
Inquiry No.	
Job description	

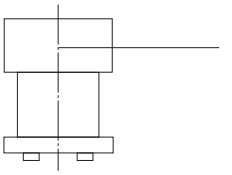
Part shape and alignment posture

(top view)
Aligning direction is commissioned to **NTN**

(CW)



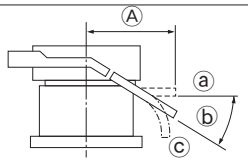
(CCW)



Up

Down

(side view)

Attachments, etc.	Connecting chute Required・Not required		ⓐ Horizontal top ⓑ Downward ＿＿＿˚ required ⓒ Vertical fall Ⓐ ＿＿mm required
	Linear feeder Required・Not required・Commissioned to **NTN**	Type	K— Commissioned to **NTN**
		Vibratory trough length	mm
	Hopper Required・Not required・Commissioned to **NTN**	Type	Bowl inside type・Detached type・Commissioned to **NTN**
		Tank material	Steel・SS・Commissioned to **NTN**
		Input amount	pcs./time hour/time
	Escapement Required・Not required	Type	ⓐFeeding works w/ enough intervals
			ⓑAbove requirement+ keeping a specific position
		Control	Your company・**NTN** (Control VAC DC V)
	Compressed air		Available Unavailable kg/cm² or more
	Paint color	K-series	**NTN** standard (Particular color)
		N-series	Silver and black
		Base plate, etc.	Gray (Munsell N-6.0) Black
	Mount plate Required・Not required	Base plate	
		Rack	Works outlet height mm
		Carrier	Slide handle Required・Not required

Repeat order	Original inquiry No. (serial No.)
Similar item has been shipped	Yes (Inquiry No. —) No

NTN CORPORATION

(Send to:)

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Contact person