Japan Quality since 1968



Automatic Screw / Bolt Feeder General Catalog



www.ohtake-root.co.jp



OHTAKE-ROOT KOGYO CO., LTD.









Features of **OHTAKE** Automatic Screw / Bolt Feeders

OHTAKE 's automatic screw feeders make use of a horizontal rail system. Supporting a wide range of materials and shapes, these units accommodate diverse workstyles and workpiece dimensions. The unique mechanism and advanced technology hugely contribute to the efficiency of your production line.



Compatible to line changes for adjustments to screw diameter and shape Supporting QC and productivity improvements

Automatic screw feeders dramatically increase the speed of screw tightening work. Designed with ease of use in mind, and employing the world's first rail-swappable mechanism, these devices let you work with screws of varying diameters and formats. Even when changing workpiece entails different screw diameters, all you need to do is swap in a new rail. No need to replace the feed mechanism itself, which means reduction of equipment costs. Horizontal rail mechanism offers speedy and stable screw feeding. Highly versatile design and ease of use drive the high efficiency of screw tightening work.





Fixed Point Take Out



Fixed Quantity Take Out

Ð

Also supports screws with washers or special formats

Horizontal rail realizes the smooth feed of numerous types of special screws, among them those with washers and with short under-head length.



Other key features

- Easy to handle and operate: simply install once to get up and running. All you have to do is push the power switch.
- \cdot Adding screws is a snap. Simply insert in bulk in the scooping chamber.
- Takes 5 seconds with a single hex wrench to swap and accommodate the screw diameter changes (NJ/NSB type). Simply loosen the rail-tightening screws, swap in a new rail, and adjust the position while tightening the screws back into place.
- In the event that too many screws are inserted or have become clogged, the unit automatically cuts the power to the drive motor and shuts off.

(+**)**

Horizontal rail provides stable, orderly array of screws

Unlike gravity-based feed mechanisms, this one uses a vibration to convey screws in a horizontal rail. Does away with problems like screw clogging and stably feeds even screws with washers attached.

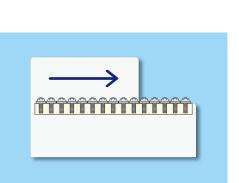


Average screw feed time is 2 per second

Achieve a three- to fivefold increase in working speed based on traditional manual work. Average screw take out of 2 per second greatly improves working efficiency.

Supports standard bits from various screwdriver manufacturers

No need to attach a specialized bit to electric screwdrivers. Immediately use standard bits you are accustomed to using. Conveys magnetized bits perpendicularly along the V-shaped groove of the bit guide, engaging the screw head and allowing it to be caught by simply pulling it close. Supports suctionstyle screwdrivers.





Makes work easier

Now you can tighten screws with one hand, improving the stability and efficiency of assembly work.

Accommodate different screw diameters by simply swapping rails

Simply swapping in the rail for a given screw diameter offers support for numerous screw types. For example, NSB models support up to 8 screw diameters in a single device.

Some models require exchanging parts in addition to swapping the rail.







Select by use

First, select your use from "manual," "robotic," and "fixed quantity take out."



Select models based on the diameter of workpiece you use (as indicated by).

3 Select by workpiece length (based on the longest ones)

Select models based on the length of the workpieceunder-head length for feeders, and total length for screw hoppers.

4 Select by workpiece material

Please have a look

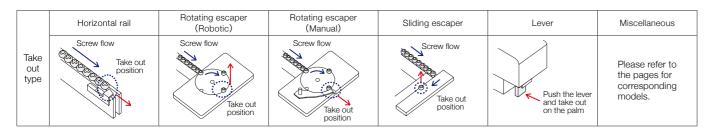
Select models based on the material of the workpiece.

at the product page.

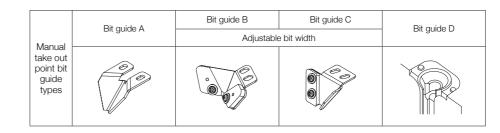
List of Models

1						1	2											3	4					
Application	Series name	Exterior appearance	Model name	\$0.5 ~\$1.0	M1.0	1	<u>т</u>	ted scr	1	d bolt s	т. Т.	y work мз.о			Ť,) M6.0	M8.0	Supported screw/bolt Maximum under-head length	Supported materials	Capacity	Take out type	Drive method	Supported screw hopper	
			NJ-23	- 31.0					•	•	•	•						- 18mm						
			NJC-23 NJL-23	-				-	•	•	•	•		-	-	+		25mm	_		Rail	Cam	NJ-80 / T-510J /	W
	NJ	14	NJ-45 NJC-45										•	•	•	Specia	d	- 18mm	-	150cc	+ bit guide A	(not adjustable)	RHP-160J / *MHP-80J	W
			NJL-45							-			•	•	•	-		25mm	-					
	NSB	-	NSB					•				•									Rail			
	N3D	-	NSBC		•	•	•	•	•	•	•	•						20mm	Ferrous/non-ferrous (irrespective of	80cc	+ bit guide B	Cam (screw	SR-80 / T-510S /	W
Manual	NSBI		NSBI		•	•	•	•	•	•	•	•						Lonin	material)	0000	Rotating escaper + bit guide B	adjustable)	*MHP-80S	
Manual	SS		SS-12		•	•	•	•	•									_	-		Rail			
			SS-23							•	•	•						- 16mm		40cc	+ bit guide C		None	
	SSI-M		SSI-12M		•	•	•	•	•									- Tomm		4000	Rotating escaper		None	
			SSI-23M							•	•	•									+ bit guide B	Solenoid (volume		
	OM-26M		OM-26M OM-26M(T063)						•	•	•	•	•	•	•	•		25mm	Iron only	300cc	Rotating escaper + bit guide A	adjustment)	RHP-160M / *MHP-80M	R
			LS25-HM									•	•	•	•	•	•	25mm	 Stainless: no (uses magnet) 	1300cc	Rotating escaper	-		R
	LS-HM	-	LS50-HM									•	•	•	•	•	•	50mm		1000cc	+ bit guide D		None	qua (
			NJR-23						•	•	•	•						18mm	_			Cam	NJ-80 / T-510J /	
	NJR	1.4	NJRL-23 NJR-45						•	•	•	•	•	•		Specia	1	25mm 18mm	_	150cc	Slide	(not	RHP-160J /	
			NJRL-45														-	25mm	_			adjustable)	*MHP-80J	
	NSR	T.A.	NSR		•	•	•	•	•	•	•	•						- 20mm	Ferrous/non-ferrous (irrespective of	80cc	Slide	Cam (screw	SR-80 / T-510S /	
	NSRI		NSRI		•	•	•	•	•	•	•	•						201111	material)	0000	Rotating escaper	adjustable)	*MHP-80S	
Robotic	SSI-R		SSI-12R		•	•	•	•	•									- 16mm		40cc	Rotating escaper		None	
			SSI-23R OM-26R			-	-			•	•	•			•		-					_		
	OM-26R		OM-26R (T063)						•	•	•	•	•	•	•	•	-	25mm	Iron only	300cc	Rotating escaper	Solenoid	RHP-160M / *MHP-80M	R
			LS25-HR									•	•	•	•	•	•	25mm	- Stainless: no (uses magnet)	1300cc		(volume adjustment)		R
	LS-HR	er.	LS50-HR									•	•	•	•	•	•	50mm		1000cc	Rotating escaper		None	qua
	MSF		MSF	•														5mm	Ferrous/non-ferrous (irrespective of material)	15cc	Rotating escaper		None	
	FM-36	- ini	FM-36									•	•	•	•	•		- 25mm	Ferrous/non-ferrous	150cc	Lover	Cam	NJ-80F / T-510F / RHP-160F /	
Fixed	FIVI-30		FME-36									•	•	•	•	•		25000	(irrespective of material)	15000	Lever	(not adjustable)	*MHP-80F	Cor fu
quantity take out	LV		LV25									•	•	•	•	•	•	25mm	Iron only Stainless: no	1300cc	Lever	Solenoid (volume	None	R
			LV50									•	•	•	•	•	•	50mm	(uses magnet)	1000cc	Miscellaneous	adjustment)		(
		•						•				-									-	-		-

*For the screw hopper, the compatible length of the screw may differ from that of the feeder it is combined with. Please check their compatibility before use. *Depending on the shape of the screw, the screw hopper may not be compatible with it.



(due to the use of a magnet).





Features	Pages
- With counter - - With counter -	5 _{page}
– With counter –	7 page
-	14 page
-	15 _{page}
– Remaining quantity sensor]] page
Remaining quantity sensor (optional)	19 _{page}
- - - -	5 _{page}
_	7 page
-	15 _{page}
– Remaining quantity sensor]] page
Remaining quantity sensor (optional)	19 _{page}
-	13 _{page}
- Communication functionality	17 _{page}
Remaining quantity sensor (optional)	19 _{page}

*MHP-80 is compatible only with iron screws

Index

Features

Ρl	Features of OHTAKE Automatic Screw / Bolt Feeders
Sele and	cting Models the Model List
Ρ3	Selection Process / List of Models
Ρ4	Index
Proc	luct Lineup
Ρ5	NJ/NJR Series All-around Screw Feeder
P7	NSB/NSR Series Versatile Screw Feeder
Ρ9	NSBI/NSRI Series Versatile Screw Feeder
P11	OM-26M/OM-26R Series High-speed and High-capacity Iron Screw Feeder
P13	MSF Series Micro-screw Feeder
P14	SS Series Slim Screw Feeder
P15	SSI-M/SSI-R Series Slim Screw Feeder
P17	FM Series Fixed Quantity Count / External Configuration Type Screw Feeder
P19	LS/LV/LF Series Large Longneck Screw Feede
P21	BS Series Pneumatic Screw Feeder
P23	Screw Hopper
FAG	1

P25 FAQ

Signals obtained from signal line

Automatic screw feeder AC adapter plug formats

NJ/NJR Series All-around Screw Feeder

Supports a wider screw diameter than the NSB/NSR series and has greater capacity, making it even more useful.





Manual NJ-23 NJ-45 NJL-23 NJL-45 NJC-23 NJC-45

Robotic NJR-23 NJR-45 NJRL-23 NJRL-45

Supports standard bits from various screwdriver manufacturers

- Bit screwdrivers
- Suction screwdrivers

Large stock

Supports a stock of 150cc.

• Special screws supported

Allows you to stably feed SW screws or those with washers.

Long-running operation when combined with screw hopper

Use a screw hopper for long-running unmanned operation.

• Smooth screw feeding

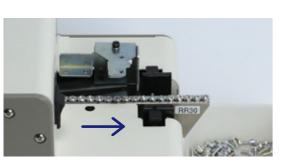
- Provides ongoing, timely feed of screws to match robot operations.

- The NJ type allows for sending out the screw take-out signal through an external outlet.

- The NSR type allows for the sending out of a signal to notify whether a screw is present at a screw take-out point through an external outlet.



NJ Series: Swap rail set (passing plate, rail)



Sample applications / NJ + RR (rail for robotic devices)



NJR Series: Swap rail set (passing plate, escaper, rail)



*NJ Series: Swap rail set (retainer plate for countersunk screws)

Swap rails in/out.

This single unit supports a wide range of screws. For example, the NJ-23 supports four types of screw in a single unit. Allows for adjusting the angle of rail inclination based on the screw being used.

Example usage of combining NJ and RR rails

Use as a horizontal feeder for continuous feed to robotic devices. If you are seeking the same functionality in a different model, please contact us.



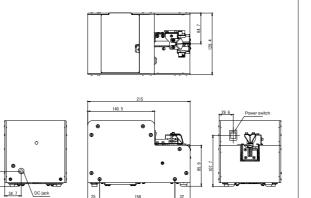
Product type

Supported		Mai	n component t	уре			S	wap rail set typ	be	
diameter (mm)	NJ Series	NJL Series	NJR Series	NJRL Series	NJC Series	NJ Series	NJL Series	NJR Series	NJRL Series	NJC Series
2.0	NJ-2320	NJL-2320	NJR-2320	NJRL-2320	NJC-2320	R20SET	RL20SET	RR20SET	RRL20SET	R20SET
2.3	NJ-2323	NJL-2323	NJR-2323	NJRL-2323	NJC-2323	R23SET	RL23SET	RR23SET	RRL23SET	R23SET
2.6	NJ-2326	NJL-2326	NJR-2326	NJRL-2326	NJC-2326	R26SET	RL26SET	RR26SET	RRL26SET	R26SET
3.0	NJ-2330	NJL-2330	NJR-2330	NJRL-2330	NJC-2330	R30SET	RL30SET	RR30SET	RRL30SET	R30SET
3.5	NJ-4535	NJL-4535	NJR-4535	NJRL-4535	NJC-4535	R35SET	RL35SET	RR35SET	RRL35SET	R35SET
4.0	NJ-4540	NJL-4540	NJR-4540	NJRL-4540	NJC-4540	R40SET	RL40SET	RR40SET	RRL40SET	R40SET
5.0	NJ-4550	NJL-4550	NJC-4550	NJRL-4550	NJC-4550	R50SET	RL50SET	RR50SET	RRL50SET	R50SET

Model Diagrams

Full diagrams of each model can be downloaded from our website.

NJ Series



External signal draw out point

Specifications

Model name	NJ-23	NJ-45	NJL-23	NJL-45	NJR-23	NJR-45	NJRL-23	NJRL-45	NJC-23	NJC-45	
Exterior dimensions		134(W)×21	5(D)×139(H)			134(W)×274	4(D)×139(H)		134(W)×215(D)×139(H)		
Volume (including the rail)		Approx	. 3.7kgf			Approx	. 4.4kgf		Approx. 3.7kgf		
Power				AC10	0V ~ 240V DC15V 1A AC adapter						
Drive motor					DC brus	h motor					
Overload protection/recovery circuit	0	0	0	0	0	0	0	0	0	0	
External signal line	0	0	0	0	0	0	0	0	0	0	
Brush overload protection mechanism	0	0	0	0	0	0	0	0	0	0	
Yield time	-	-	-	-		Approx. 1.5sec	c		-	-	
Supported screw diameter	φ 2.0~φ 3.0	φ 3.5~φ 5.0	φ 2.0~φ 3.0	φ 3.5~φ 5.0	M2.0~M3.0	M3.5~M5.0	M2.0~M3.0	M3.5~M5.0	M2.0~M3.0	M3.5~M5.0	
Supported screw under-head length			Up to 25 mm in length		Up to 18 mm in length		Up to 25 mm in length		Up to 18 mm in length		
Screw capacity	Approx. 150cc										
Accessories and bundled items		Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire									

*If you are looking for equivalent parts for other models, please inquire.



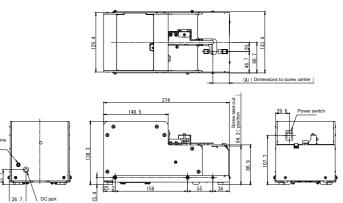
NJRL-23 NJRL-45

NUC-23

NJC-23 NJC-45

With a Counte

NJR Series



NSB / NSR Series Versatile Screw Feeder

Swapping rails allows you to accommodate various screw diameters with a single unit. Almost no screw is incompatible.



Screws are moved smoothly, and durability has been improved dramatically

Longest:

20mm

Manual NSB NSBC

Robotic NSR

Non-ferrous

materials:

supported

Capacity

About

80cc

 \langle Improved screw chamber \rangle Reduces strain on the motor for more efficient screw

alignment.

< Adjustable rail angle >

M1.0~M3.0

Allows for adjusting the angle of rail inclination based on the screw being used.

 \langle Amplitude adjustment \rangle

Allows for calibrating amplitude based on the type of screw being used.

 \langle No side-to-side vibration \rangle

Alleviates side-to-side rail vibration to achieve smooth screw conveyance.

• Other Key Features

- Compact size does not take up space.

- Use a screw hopper for high-capacity stock of screws.

- The NSR type features a screw take out point with a signal notifying whether a screw is present.

- The NSB type allows for sending out the signal of screw take out through an external outlet.

A single unit supports 8 different screw diameters.

The NSB type supports 8 types of screw diameters by simply swapping rails. (Supports 8 types—from M1.0 to M.30—by default)
The NSR type supports this through simply swapping the rail and escaper. Clean up oil and other stains easily by removing rail from behind.







NSR rails and escapers

One-touch rail swap

Swapping rails is also easy. Also allows you to easily swap rails based on changes in screw diameter. (NSB type)





Manual Type



NSR



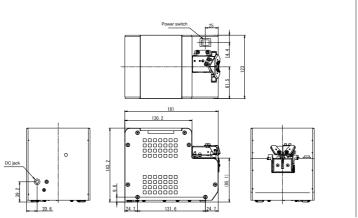
Product type

Supported screw	Mai	n component t	уре	S	Swap rail set type				
diameter (mm)	NSB Series	NSR Series	NSBC Series	NSB Series	NSR Series	NSBC Series			
1.0	NSB-10	NSR-10	NSBC-10	SR10SET	SRR10SET	SR10SET			
1.2	NSB-12	NSR-12	NSBC-12	SR12SET	SRR12SET	SR12SET			
1.4	NSB-14	NSR-14	NSBC-14	SR14SET	SRR14SET	SR14SET			
1.7	NSB-17	NSR-17	NSBC-17	SR17SET	SRR17SET	SR17SET			
2.0	NSB-20	NSR-20	NSBC-20	SR20SET	SRR20SET	SR20SET			
2.3	NSB-23	NSR-23	NSBC-23	SR23SET	SRR23SET	SR23SET			
2.6	NSB-26	NSR-26	NSBC-26	SR26SET	SRR26SET	SR26SET			
3.0	NSB-30	NSR-30	NSBC-30	SR30SET	SRR30SET	SR30SET			

Model Diagrams

Full diagrams of each model can be downloaded from our website.

NSB Series



Specifications

Model name	NSB	NSR	NSBC				
Exterior dimensions		123(W)×181(D)×145(H)	·				
Volume (including the rail)	Approx. 2.9kgf	Approx. 3.0kgf	Approx. 2.9kgf				
Power		AC100V ~ 240V DC15V 1A AC adapter					
Drive motor		DC brush motor					
Overload protection/recovery circuit	0	0	0				
External signal line	0	0	0				
Escaper electric break function	-	0	-				
Yield time	-	Approx. 1.5sec	-				
Supported screw diameter		M1.0~M3.0	<u>`</u>				
Supported screw under-head length		Up to 20 mm in length					
Screw capacity		Approx. 80cc					
Accessories and bundled items	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, 0.35 mm gauge plate, earth wire	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, 0.35 mm gauge plate, earth wire				

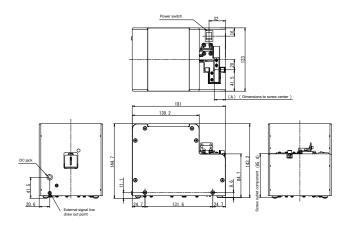
With a Counter





NSBC

NSR Series



NSBI / NSRI Series **Versatile Screw Feeder**

High-precision, High-speed, and High-durability



*For details, please refer to each product's specifications section.

Manual NSBI

Robotic NSRI NSRI-B (With Brushless Motor)

• Features a rotary escaper

Separates screws one at a time, ensuring they do not intersect for smooth take out.

• Special screws supported

Allows you to stably feed SW screws or those with washers.

• Dramatic improvements in motor durability

NSRI-B: includes a brushless motor. The motor now has a greatly improved lifecycle. (3x greater)

• Flexible support for line changes

Supports screws of varying diameters. Easy installation: simply set into place, and the portable size lets you adapt to line or workpiece changes.



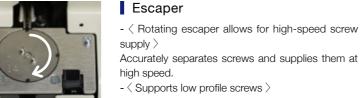
installation example

NSRI-B robotic device installation example

- Easy installation-simply drop into place. Makes maintenance and replacement easy.

- NSRI/NSRI-B: screw take out point features a signal notifying whether the screw is at the take out point.

Rotating escaper





- \langle Supports low profile screws \rangle By default, supports up to 0.35mm (or 0.2mm by

special order) low profile screws. - Separates screws one at a time, ensuring they do

not clog at the take out outlet.

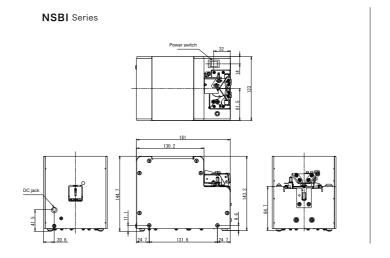


Product type

Supported	Mai	n component t	уре	Swap rail set type				
diameter (mm)	NSBI Series	NSRI Series	NSRI-B Series	NSBI Series	NSRI Series	NSRI-B Series		
1.0	NSBI-10	NSRI-10	NSRI-10B	BI10SET	RI10SET	RI10SET2		
1.2	NSBI-12	NSRI-12	NSRI-12B	BI12SET	RI12SET	RI12SET2		
1.4	NSBI-14	NSRI-14	NSRI-14B	BI14SET	RI14SET	RI14SET2		
1.7	NSBI-17	NSRI-17	NSRI-17B	BI17SET	RI17SET	RI17SET2		
2.0	NSBI-20	NSRI-20	NSRI-20B	BI20SET	RI20SET	RI20SET2		
2.3	NSBI-23	NSRI-23	NSRI-23B	BI23SET	RI23SET	RI23SET2		
2.6	NSBI-26	NSRI-26	NSRI-26B	BI26SET	RI26SET	RI26SET2		
3.0	NSBI-30	NSRI-30	NSRI-30B	BI30SET	RI30SET	RI30SET2		

Model Diagrams

Full diagrams of each model can be downloaded from our website



Specifications

Model name	NSBI	NSRI	NSRI-B				
Exterior dimensions		123(W)×181(D)×145(H)	·				
Volume (including the rail)		Approx. 3.0kgf					
Power	AC100V ~ 240V DC15V 1A AC adapter						
Drive motor	DC brush motor	DC brushless motor · Stepper motor					
Overload protection/recovery circuit	0	0	0				
External signal line	0	0	0				
Escaper S-shape controlling function	0	0	0				
Escaper rotation time lag adjustment function	-	-	0				
Yield time		Approx. 0.9sec	·				
Supported screw diameter		M1.0~M3.0					
Supported screw under-head length		Up to 20 mm in length					
Screw capacity		Approx. 80cc					
Accessories and bundled items	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire						

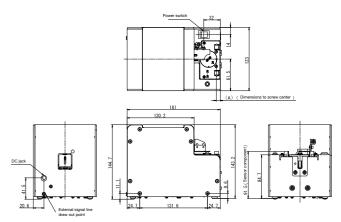
With Brushless Motor





NSRI-B

NSRI Series



OM-26M / OM-26R Series High-speed and High-capacity Iron Screw Feeder

High-capacity model: 300cc (only supports iron screws)





*For details, please refer to each product's specifications section.

Manual OM-26M

Robotic OM-26R OM-26RB (With Brushless Motor)

• Features a rotary escaper

Separates screws one at a time, ensuring they do not intersect for smooth take out.

Supports standard bits from various screwdriver manufacturers

- Bit screwdrivers

- Suction screwdrivers

• Large capacity: 300 cc

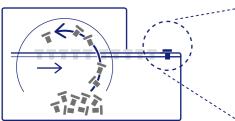
Supports a stock of 780 M3.0x12mm washer faced screws.

• Special screws supported

Allows you to stably feed SW screws or those with washers.

Dramatic improvements in motor durability

OM-26RB: equipped with a brushless motor. The motor now has a greatly improved lifecycle. (3x greater)



Magnetically conveys screws along rail for a stable feed.



High-capacity screw stock (4x that of the NSB type)

Magnetically conveys screws along rail for a stable feed. Design prevents screws from getting stuck. The rotating escaper also isolates screws one at a time in order to prevent take out errors.

Optional: quantity sensor

Rotating escaper

OM-26R/M screw quantity sensor (TKA09452) This is a screw quantity sensor (TKA09452) intended for use with the OM-26R/M Series Automatic Screw Feeder. Combine with the OM-26R/M in order to detect when the screw stock is low and send a signal. Please contact us regarding quantity sensors for other products.

Manual Type	Robotic Type
OM-26M	OM-26R

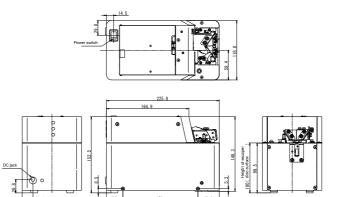
Product type

Supported	Mai	n component t	уре	S	wap rail set typ	be
screw diameter (mm)	OM-26M Series	OM-26R Series	OM-26RB Series	OM-26M Series	OM-26R Series	OM-26RB Series
2.0	OM-26M20	OM-26R20	OM-26RB20	OMM20SET	OMR20SET	OMR20SET2
2.3	OM-26M23	OM-26R23	OM-26RB23	OMM23SET	OMR23SET	OMR23SET2
2.6	OM-26M26	OM-26R26	OM-26RB26	OMM26SET	OMR26SET	OMR26SET2
3.0	OM-26M30	OM-26R30	OM-26RB30	OMM30SET	OMR30SET	OMR30SET2
3.5	OM-26M35	OM-26R35	OM-26RB35	OMM35SET	OMR35SET	OMR35SET2
4.0	OM-26M40	OM-26R40	OM-26RB40	OMM40SET	OMR40SET	OMR40SET2
5.0	OM-26M50	OM-26R50	OM-26RB50	OMM50SET	OMR50SET	OMR50SET2
6.0	OM-26M60	OM-26R60	OM-26RB60	OMM60SET	OMR60SET	OMR60SET2

Model Diagrams

Full diagrams of each model can be downloaded from our website.

OM-26M Series



Specifications

Model name	OM-26M	OM-26R	OM-26RB			
Exterior dimensions		119(W)×226(D)×152(H)				
Volume (including the rail)		Approx. 3.1kgf				
Power		AC100V ~ 240V DC15V 1A AC adapter				
Drive motor	DC brush moto	DC brushless motor · Stepper motor				
Overload protection/recovery circuit	0	0	0			
External signal line	0	0	0			
External signal line (remaining quantity sensor)	Optional					
Escaper S-shape controlling function	0	0	0			
Escaper rotation time lag adjustment function	-	-	0			
Yield time		Approx. 0.8sec				
Supported screw materials		Iron only				
Supported screw diameter		M2.0 ~ M6.0				
Supported screw under-head length		Up to 25 mm in length				
Screw capacity		Approx. 300 cc				
Accessories and bundled items	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire					

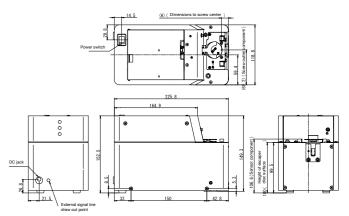






OM-26RB

OM-26R Series



MSF Series Micro-screw Feeder

Supports screws as small as S0.5



*For details, please refer to each product's specifications section.

Robotic MSF

Image: state stat

Specifications

Model name	MSF
Exterior dimensions	71(W)×194(D)×132(H)
Volume (including the rail)	Approx. 2kgf
Power	AC100V ~ 240V DC15V 1A AC adapter
Drive motor	DC brush motor · Stepper motor
External outlet terminal	0
Supported screw diameter	S0.5 ~ S1.0
Supported screw under-head length	1 ~ 5mm
Screw capacity	Approx. 15cc
Accessories and bundled items	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire

Product type

Supported screw diameter (mm)	Main component type MSF Series
0.5	MSF-05
0.6	MSF-06
0.7	MSF-07
0.8	MSF-08
1.0	MSF-10

Accurately and reliably isolates tiny screws

Rotating escaper isolates even tiny screws one by one.

• Space-saving slim design

Compact, 70mm-wide design saves space.

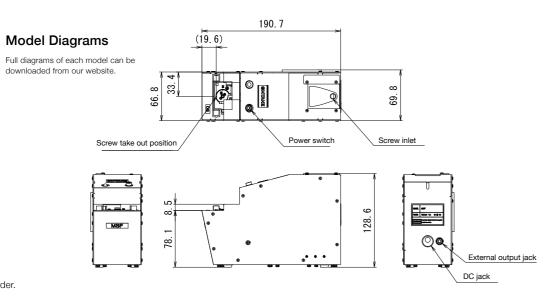
• Simple installation

Easy installation-just set in place.

Example of installation for a robotic device

Easy installation—simply drop into place. Makes maintenance and replacement easy.
Screw take out point features a signal notifying whether the screw is at the take out point.
Rotating escaper ensures accurate screw feed.





SS Series Slim Screw Feeder

Super thin 55mm width is ideal for cell work



Specifications

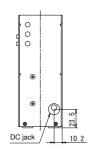
Model name	SS-12	SS-23		
Exterior dimensions	55(W)×205(D)×143(H)			
Volume (including the rail)	Approx. 2.4kgf			
Power	AC100V ~ 240V DC15V 1A AC adapte			
Drive motor	DC brush motor			
Overload protection/recovery circuit	0	0		
Supported screw diameter	M1.0~M2.0	M2.3 ~ M3.0		
Supported screw under-head length	Up to 16 mm in length			
Screw capacity	Approx. 40cc			
Accessories and bundled items	Instruction manual, AC adapter, hex wrench adjusting screwdriver, earth wire			

Product type

Supported screw	SS S	SS Series			
diameter (mm)	Main component type	Swap rail set type			
1.0	SS-1210	WR10			
1.2	SS-1212	WR12			
1.4	SS-1214	WR14			
1.7	SS-1217	WR17			
2.0	SS-1220	WR20			
2.3	SS-2323	WR23			
2.6	SS-2326	WR26			
3.0	SS-2330	WR30			

Model Diagrams

Full diagrams of each model can be downloaded from our website.



*Please inquire prior to placing an order.

Supported screw diameter M1.0 ~ M3.0	Supported screw under- head length Longest: 16mm	Capacity About 40 cc	Non-ferrous materials: supported
*For details, pleas	se refer to each produ	uct's specification	s section.
Manual	S-12 SS-23		

Output Slim design that allows them to be installed next to each other.

In just half the width of the NJ/NS Series, you can fit two units for the space of a single NSB.

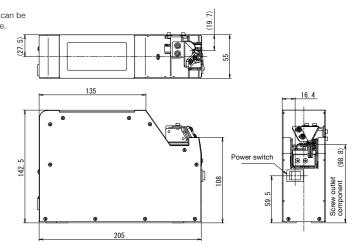
• Supports low profile screws

Adjust sensor to support up to 0.25mm screw heads. (factory setting: 0.5mm)

Adjustable screw conveyor speed

Calibrate amplitude and frequency to achieve the ideal feed speed.





SSI-M / SSI-R Series Slim Screw Feeder

Compact size supports a wide range of assembly workflows and fits anywhere



Space-saving slim design

M1.0~M3.0

Manual

Compact, 65mm-wide design saves space.

Stable rail movement without clog

Longest:

16mm

SSI-12M SSI-23M

Robotic SSI-12R SSI-23R

*For details, please refer to each product's specifications section.

Horizontal rail system prevents screws from clogging or overlapping, achieving stable feed.

Capacity

About

40cc

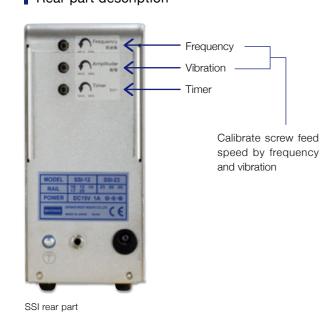
Non-ferrous materials:

supported

Integrated output designed for use with general counters

Send take out signal from output jack to connect a general-purpose counter.

Rear part description



Escaper

- \langle Rotating escaper allows for high-speed screw supply \rangle
- Accurately separates screws and supplies them at high speed.
- \langle Supports low profile screws \rangle
- By default, supports up to 0.35mm (or 0.2mm by special order) low profile screws.
- Separates screws one at a time, ensuring they do not clog at the take out outlet.



Rotating escaper

Manual Type



SSI-12M SSI-23M

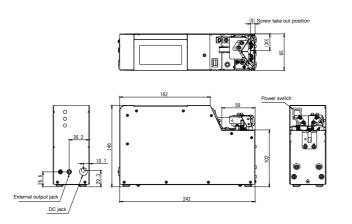
Product type

Supported screw	Main comp	onent type	Swap rail	l set type
diameter (mm)	SSI-M Series	SSI-R Series	SSI-M Series	SSI-R Series
1.0	SSI-12M10	SSI-12R10	SIM10SET	SIR10SET
1.2	SSI-12M12	SSI-12R12	SIM12SET	SIR12SET
1.4	SSI-12M14	SSI-12R14	SIM14SET	SIR14SET
1.7	SSI-12M17	SSI-12R17	SIM17SET	SIR17SET
2.0	SSI-12M20	SSI-12R20	SIM20SET	SIR20SET
2.3	SSI-23M23	SSI-23R23	SIM23SET	SIR23SET
2.6	SSI-23M26	SSI-23R26	SIM26SET	SIR26SET
3.0	SSI-23M30	SSI-23R30	SIM30SET	SIR30SET

Model Diagrams

Full diagrams of each model can be downloaded from our website.

SSI-M Series



Specifications

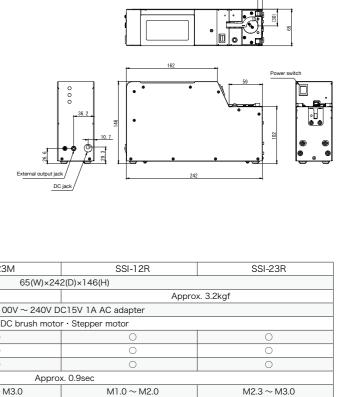
Model name	SSI-12M	SSI-23	
Exterior dimensions			
Volume (including the rail)	Approx. 3.3kgf		
Power	l l		
Drive motor		D	
Overload protection/recovery circuit	0	0	
External outlet terminal	0	0	
Escaper S-shape controlling function	0	0	
Yield time		~	
Supported screw diameter	M1.0~M2.0	M2.3~N	
Supported screw under-head length			
Screw capacity			
Accessories and bundled items	Instruction manual, AC		



SSI-R Series

Up to 16 mm in length Approx. 40cc

adapter, hex wrench, adjusting screwdriver, earth wire



(A) (Dir

16

FM Series

Fixed Quantity Count / External Configuration Type Screw Feeder





Accurately feeds the number of screws input to counter

Longest

25mm

*For details, please refer to each product's specifications section.

Fixed-quantity take out FM-36 FME-36

 $M30 \sim M60$

Capacity

About

150cc

(External Configuration)

Non-ferrous materials:

supported

Set between 1 and 99. Accurately counts and expels the number you set.

• Stable rail movement without clog

Horizontal rail system prevents screws from clogging or overlapping, achieving stable feed.

• Flexibly supports line changes

Supports screws of varying diameters. Easy installation: simply set into place, and the portable size lets you adapt to line or workpiece changes.

Long-running operation when combined with screw hopper

FM unit supports 150cc; add screw hopper for additional 400–1600cc stock.

Counter

- Set of 0-99

- Intervals: 0-9999
- Exterior take out signal
- Power outage memory protection feature



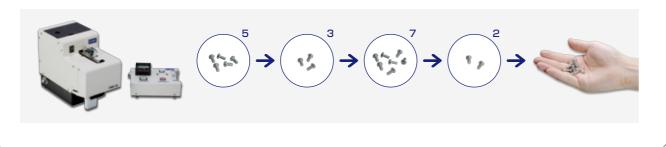
Fixed quantity take out with nut support

By special order, we can consider the fixed quantity nut take out model. Please do not hesitate to contact us.



Connect to unit for variable take out quantity (FME-36)

Change the fixed screw feed quantity using a PLC of a variety of manufacturers. *The PLC interface (NEX-PLC) is exclusively for use with the FME-36.



Fixed-quantity take out



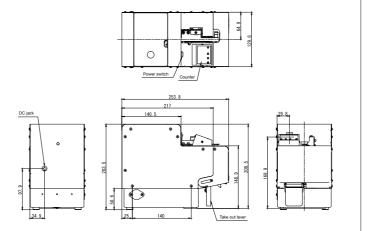
Product type

Supported screw	Main component type		Swap rail set type
diameter (mm)	FM Series	FME Series	FM/FME Common across the series
3.0	FM-3630	FME-3630	FR30SET
3.5	FM-3635	FME-3635	FR35SET
4.0	FM-3640	FME-3640	FR40SET
5.0	FM-3650	FME-3650	FR50SET
6.0	FM-3660	FME-3660	FR60SET

Model Diagrams

Full diagrams of each model can be downloaded from our website.

FM-36 Series



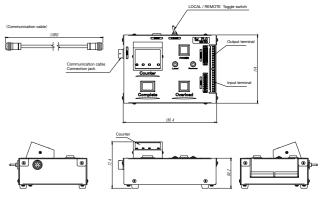
Specifications

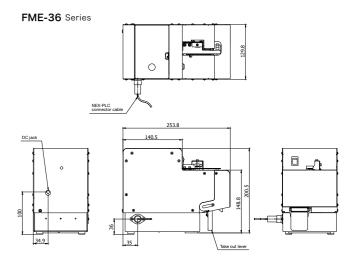
Vodel name	FM-36	FME-36		
Main component exterior dimensions	130(W)×254(D)×201(H)			
Main component volume (including the rail)	Approx. 6.0kgf			
Main component power supply	AC100V~24	40V DC15V 1A AC adapter		
Drive motor	C	DC brush motor		
Overload protection/recovery circuit	0			
External signal line	0			
Brush overload protection mechanism	0			
Number configuration	99 maximum 127 maximum			
Supported screw diameter		M3.0~M6.0		
Supported screw under-head length	Up to 25 mm in length			
Screw capacity	Approx. 150cc			
Accessories and bundled items	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire			
Extension box exterior dimensions	- 155(W)×113(D)×44(H)			
Extension box power supply	-	AC100V ~ 240V DC24V 1.9A AC adapter		

*Note that some screw sizes may not support take out of 99 units.



NEX-PLC





LS / LV / LF Series Large Longneck Screw Feeder

Supports screws and bolts with a diameter of up to M8.0 and an under-head length of 50mm. Ideal for feeding screws and bolts for automotive assembly, construction, and renovation applications.



• Large capacity

M3.0~M8.0

Manual

Robotic

High-capacity stock: between 1000-1300cc

Longest:

*For details, please refer to each product's specifications section

Fixed-quantity take out LV25 LV50 LF50

25/50mm

• We are equipped to support a range of needs

Comes with six patterns that you can select based on the type of workpiece and intended use. (Please refer to the suggested take out patterns)

Capacity

About

1000/

1300cc

LS25-HM LS-50HM

LS25-HR LS-50HR

For iron

screws

• Rivet supported

Fixed-quantity alignment of rivet is supported. As there is no need for reorientation of rivet in hand, it greatly improves work efficiency.

Supports screws and bolts of 3.0mm-8.0mm diameters

Achieve a stable, horizontal feed even for large workpieces. Configure up to 999 pieces. No need to check screw quantity each time.



Suggested take out patterns

Manual

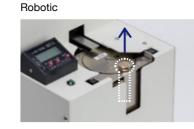


LS25-HM / LS50-HM

Fixed quantity



LV25-H/ LV50-H



LS25-HR LS-50HR

Feed fixed quantity to box



LV25-B/ LV50-B



111111111111111

Feed fixed quantity to rail



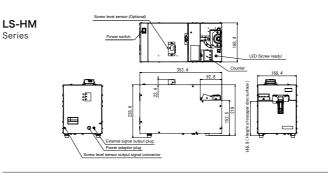
LF50

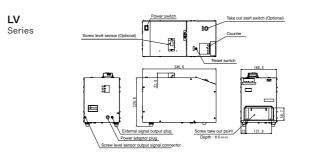


Product type

	-					
		Main component type				
Supported screw	LS-HM	Series	LS-HR	LS-HR Series		eries
diameter (mm)	Up to under- head length of 25mm	Up to under- head length of 50mm	Up to under- head length of 25mm	Up to under- head length of 50mm	Up to under- head length of 25mm	Up to under- head length of 50mm
3.0	LS25-HM30	LS50-HM30	LS25-HR30	LS50-HR30	LV25-30	LV50-30
3.5	LS25-HM35	LS50-HM35	LS25-HR35	LS50-HR35	LV25-35	LV50-35
4.0	LS25-HM40	LS50-HM40	LS25-HR40	LS50-HR40	LV25-40	LV50-40
5.0	LS25-HM50	LS50-HM50	LS25-HR50	LS50-HR50	LV25-50	LV50-50
6.0	LS25-HM60	LS50-HM60	LS25-HR60	LS50-HR60	LV25-60	LV50-60
8.0	LS25-HM80	LS50-HM80	LS25-HR80	LS50-HR80	LV25-80	LV50-80

Model Diagrams Full diagrams of each model can be downloaded from our website.





Specifications

Model name	LS25-HM	LS50-HM	LS25-HR	LS50-HR	LV-25	LV-50	LF-50
Exterior dimensions	169(W)×354(D)×229(H)			169(W)×347(D)×229(H)		169(W)×354(D)×229(H) Front rail protruding part : 136mm	
Volume (including the rail)				Appro	x. 15kgf		
Power			A	Λ C100V \sim 240V D	C15V 1A AC adap	ter	
Drive motor		DC brushless motor · DC brush motor					
Overload protection/recovery circuit	0	0	0	0	0	0	0
External outlet terminal	0	0	0	0	0	0	0
Safety function		Stopping operation when the cover of stock chamber is open					
Supported screw diameter	M3.0 -	M3.0 ~ M8.0 M3.0 ~ M8.0		M3.0 ~ M8.0		ϕ 2 $\sim \phi$ 2.6 (with record)	
Supported screw under-head length	Up to 25 mm in length	Up to 50 mm in length	Up to 25 mm in length	Up to 50 mm in length	Up to 25 mm in length	Up to 50 mm in length	Up to 25 mm in length
Screw capacity	Approx. 1300cc	Approx. 1000cc	Approx. 1300cc	Approx. 1000cc	Approx. 1300cc	Approx. 1000cc	Approx. 1000cc
Accessories and bundled items		Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire					

*Please inquire prior to placing an order. You are required to check the work bit you are using.





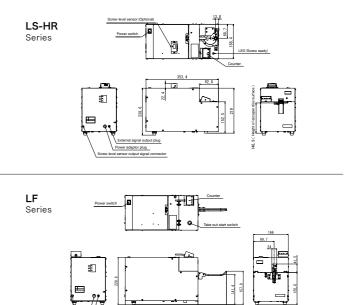


LV25-B LV50-B

LV25-H LV50-H

LF50

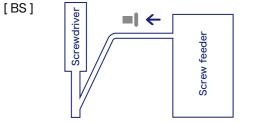
Supported screw diameter (mm)	Main component type LF Series
	Up to under-head length of 50mm
2.0	LF50-20
2.2	LF50-22
2.6	LF50-26



BS Series **Pneumatic Screw Feeder**

Pneumatically feeds screws to their destination in an instant

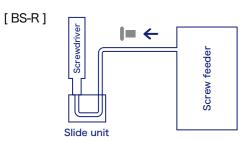




- Screws are pneumatically fed by request through an external signal.

- Screws are fed to the screwdriver's Y pipe with the screw side at the front.

- It is compatible with the screwdriver of screw-tightening robots and manual screw-tightening screwdrivers.



- Screws are pneumatically fed by request through an external signal.

- By placing the screw-feeding part of the slide unit near the screwdriver, it can shorten the time it takes to feed screws to the screwdriver.

- Screws are fed with the screw-head side at the front.

- It is compatible with screw-tightening robots.



BS-D Manual

Robotic

BS(S) BS(L) BS-P BS-R Fixed-quantity take out BS-C

*BS-P irrespective of material / Other models only for iron screw

• Use air pressure to convey screws to distant locations

Brings screws right to you using air pressure, dramatically improving work efficiency.

*The default hose is 2.5 meters long, and it requires air tubing to be installed.

Space-saving and high-capacity in one model

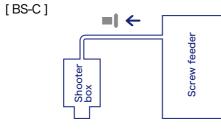
Separating the screw feed from take out points allows for a space-saving design.

• Four types based on different needs

BS (for manual and robotic) : pneumatically feeds screw in response to an external signal

BS-R (robotic take out) : sliding unit conveys screws to screwdriver pneumatically, greatly cutting down on yield time.

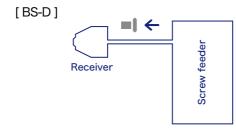
BS-C (fixed quantity bulk take out) : takes out the quantity set with the counter and allows for removal by simply pulling the lever. BS-D (fixed quantity single take out) : takes out the number of screws and bolts you set one at a time next to your hand.



- Screws of fixed quantity are taken out in bulk.

- The screw feeder can be placed outside the work space, saving more space for work.

- With fixed quantity take out, it can contribute to preventing screw tightening being forgotten.



- Fixed quantity screws are taken out one at a time.

- The screw feeder can be placed outside the work space, saving more space for work.

- It feeds the screw next to the hand doing the screwtiahtenina work.

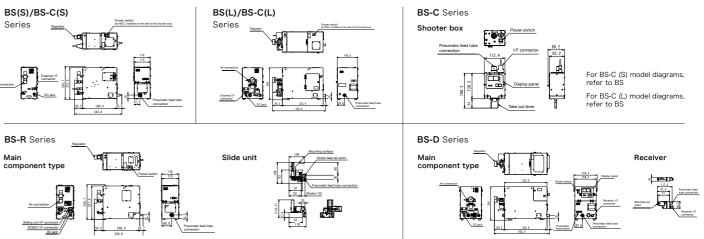
- With fixed quantity take out, it can contribute to preventing screw tightening being forgotten.

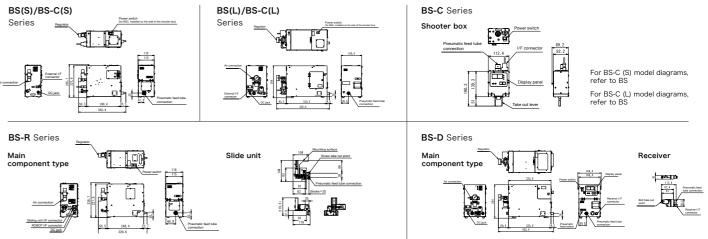


Product type

Supported screw diameter (mm)	Main component type								
	BS Series		BS-R Series	BS-D Series	BS-C Series				
	Scooping chamber capacity: approx. 280cc	Scooping chamber capacity: approx. 1300cc	-	-	Scooping chamber capacity: approx. 280cc	Scooping chamber capacity: approx. 1300cc			
2.0	BS-S20	BS-L20	BS-R20	-	BS-CS20	BS-CL20			
2.3	BS-S23	BS-L23	BS-R23	-	BS-CS23	BS-CL23			
2.6	BS-S26	BS-L26	BS-R26	-	BS-CS26	BS-CL26			
3.0	BS-S30	BS-L30	BS-R30	BS-D30	BS-CS30	BS-CL30			
3.5	BS-S35	BS-L35	BS-R35	BS-D35	BS-CS35	BS-CL35			
4.0	BS-S40	BS-L40	BS-R40	BS-D40	BS-CS40	BS-CL40			
5.0	BS-S50	BS-L50	BS-R50	BS-D50	BS-CS50	BS-CL50			
6.0	BS-S60	BS-L60	-	BS-D60	BS-CS60	BS-CL60			

Model Diagrams Full diagrams of each model can be downloaded from our website.

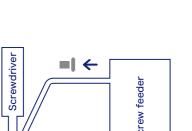




Specifications

Model name	BS-S	BS-L	BS-CS	BS-CL	BS-D	BS-P	BS-R		
Exterior dimensions	118(W)×310(D)× 237(H)	169(W)×436(D)× 270(H)	118(W)×310(D)× 237(H)	169(W)×436(D)× 270(H)	169(W)×436(D)× 270(H)	175(W)×304(D)× 186(H)	118(W)×310(D)× 237(H)		
Volume (including the rail)	Approx. 4kgf	Approx. 10kgf	Approx. 5kgf	Approx. 12kgf	Approx. 12kgf	Approx. 4kgf	Approx. 4.6kgf		
Power	AC100V ~ 240V DC15V 1A AC adapter								
Air				0.5MPa MAX 400L/mir	1				
Drive motor				DC brushless motor					
Pneumatic screw feeding direction									
Overload protection/recovery circuit	0	0	0	0	0	0	0		
External interface	 (D-SUB 9pin) 	 (D-SUB 9pin) 	-	-	-	 (D-SUB 9pin) 	O (D-SUB 9pin)		
Yield time		Approx. 1.2sec	Approx. 1.5sec						
Supported screw diameter		M2.0 ~	~ M6.0		M3.0 ~ M6.0	M1.0 ~ M3.0	M2.0 ~ M5.0		
Supported screw under-head length	Up to 25 mm in length Up to 10 ~ 25mm in length Up to 12 mm in length						Up to 14 mm in length		
Supported total length of screw	Length / head diameter = 1.3 or more								
Screw capacity	Approx. 280cc	Approx. 1300cc	Approx. 280cc	Approx. 1300cc	Approx. 1300cc	Approx. 80cc	Approx. 280cc		
Accessories and bundled items	Instruction manual, AC adapter, hex wrench, adjusting screwdriver, earth wire, Pneumatic feed tube (2.5M)								
Accompanying unit	-	-	Form : 113(W	er box /)×82(D)×140(H) ox. 20 for M6X25	Receiver Form : 30(W)×52(D) ×120(H)	-	Slide unit Form : 116(W)× 144(D)×(120H)		

*Please inquire prior to placing an order.



Enables Long-running Screw Feeding Screw Hopper

A sensor detects a screw stock to automatically feed the optimal amount of screws. Use this to make operation management easier.





SR-80 / NJ-80 Rear-attaching Impeller Style Model

- Easy installation-simply line up next to the screw feeder. It will not take up space on the upper surface.

- Super compact model fits anywhere yet has room for a screw stock of 800cc.

- Use the timer to set the impeller operation time.

Product type

SR-80 model	Supported screw feeder		NJ-80 model	Supported
Model number			Model number	screw feeder
SR-80	NSB / NSR / NSBI / NSRI / NSRI -B		NJ-80	NJ /NJR
30-00			NJ-80F	FM-36 / FME-36

Stock capacity based on the diameter and length of the screw for 800cc: M2.3x5, approx. 20,000; M3.0x6, approx. 5,600





RHP-160 Side and Rear Attaching High-Capacity Impeller Style Model

- Easy installation-simply line up next to the screw feeder.

- Supports a screw stock of approximately 1600cc.
- Use the timer to set the impeller operation time.

Product type

RHP-160 model	Supported screw feeder		
Model number	Supported screw reeder		
RHP-160J	NJ / NJR		
RHP-160F	FM-36 / FME-36		
RHP-160M	OM-26M / OM-26R / OM-26RB		



M1.0~M6.0



For iron screws

Non-ferrous

supported

Capacity

About

400~

1600cc

Longest:

18/25mm

*For details, please refer to each product's specifications section.

T-510 Conveyor Style, Surface Mounting Model

- Easy installation-simply align on top of the screw feeder.

- Does not take up floor space; allows you to add more stock vertically.

- Use the timer to set conveyor belt operation time.

Product type

T-510 model	Supported screw feeder			
Model number	Supported screw reeder			
T-510S	NSB / NSR / NSBI / NSRI / NSRI-B			
T-510J	NJ / NJR			
T-510F	FM-36 / FME-36			

Stock capacity based on the diameter and length of the screw for 400cc: M2.3 x5, approx. 10,000; M3.0 x6, approx. 2,800





Installation example

MHP-80 Magnetic Style, Rear Attaching Model

- Easy installation-simply line up next to the screw feeder. Even supports long screws.

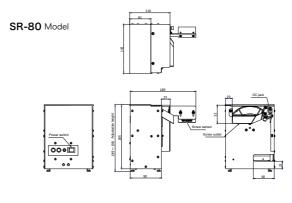
- Magnets are used to feed and convey screws.
- Use the timer to set the magnet operation time.

Product type

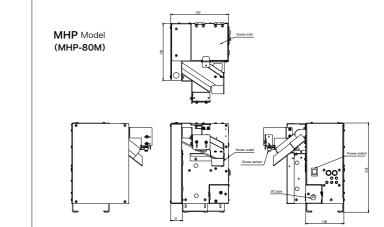
21	
MHP-80 model	Currented corous feeder
Model number	Supported screw feeder
MHP-80S	NSB / NSR / NSBI / NSRI / NSRI-B
MHP-80J	NJ / NJR
MHP-80F	FM-36 / FME-36
MHP-80M	OM-26M / OM-26R / OM-26RB

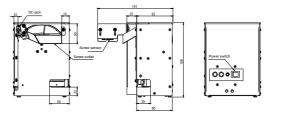
Model Diagrams Full diagrams of each model can be

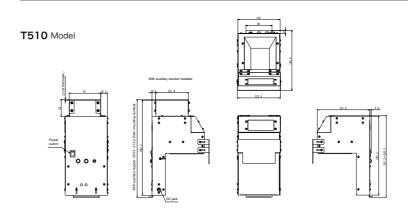
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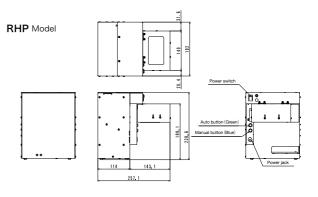






Specifications

Model name	NJ-80	SR-80	T-510	RHP-160	MHP-80	
Exterior dimensions	142(W)×191(D)× 188(H)	142(W)×191(D)×189 ~198(H)	130(W)×171(D)×245(H) With auxiliary stocker installed 295(H)	192(W)×237(D)×240(H)	156(W)×150(D)×212(H)	
Volume (including the rail)	Approx	. 2.9kgf	Approx. 3.1kgf	Approx. 5.5kgf	Approx. 2.9kgf	
Power	A	C100V DC12V 0.5A AC	adapter	AC100V ~ 240V DC	15V 1A AC adapter	
Drive motor			DC brush motor			
External signal line (remaining quantity sensor)			0	-) (Optional)	
Safety function	-	-	-	Stopping operation when the cover of stock chamber is open	-	
Supported screw materials	-	-	-	-	Iron only	
Supported screw diameter	M2.0 -	~ M6.0	M1.0~M6.0	M2.0 ~ M6.0	M2.0 ~ M6.0	
Supported total length of screw	Up to 18 m	nm in length	Up to 25 mm in length			
Screw capacity	Approx	Approx. 800cc		Approx. 1600cc	Approx. 800cc	
Accessories and bundled items Instruction manual, AC adapter, Screw splash-proof cover / mounting plate, attaching screws (only for T-510F)		Instruction manual, auxiliary stocker, AC adapter, hex wrench, Screw (nominal length 2.6 x 5), External signal line / mounting plate, attaching screws (only for T-510F)	Instruction manual, AC adapter, hex wrench / mounting plate, attaching screws (only for RHP-160F)	Instruction manual, AC adapter, Screw splash-proof cover, adjusting screwdriver / mounting plate, attaching screws (only for MHP-80F)		



FAQ

Q	Can I increase screw capacity for the screw feeder?	You can add a screw hopper to add capacity of 400–1600cc.
Q	Self-tapping screws are not working as intended. Why?	One possible cause is that M3.5 tolerance screws are intermingled with M3.0 tapping screws. If handling workpieces with large differences in screw tolerance, select a product based on the maximum screw and bolt diameter.
Q	I want to use a hexagon socket head cap bolt.	If you are considering a hexagon socket head cap bolt, please inquire at our dealer before placing an order.
Q	Can I have model diagrams?	They can be downloaded from our website.
Q	Do you support special screw and bolt shapes?	If you are considering a device for a specialized screw or bolt, please print out the Special Order Form from our website, complete it, and submit it to one of our dealers.
Q	Can I have extra parts for maintenance?	To purchase extra parts, please contact the dealer where you purchased the product.
Q	How can I fix a feeder for a robotic device?	This is described in the product manual available on our website.
Q	I want to know more about options.	Please refer to our website.

Signals obtained from signal line

- Manual models : Signal of the screw take out can be obtained.

- Robotic models : Signal of whether there is a screw in the screw take out point can be obtained.

- Fixed quantity take out models : Signal of feed completion for set number of screws can be obtained.

For customers seeking repairs

Print out a repair request form from our website, complete it, and submit it to the dealer where you purchased the product. Include the repair request form with your item to be repaired. If you do not have a printer, please include the details indicated on the right on a piece of paper.

Website : www.ohtake-root.co.jp

- Product name
- Serial number (on reverse)
- Company name, address, contact person name and
- department, telephone number, fax number
- Problem (in detail)
- Context in which it is used (type of screws, etc.)

Automatic screw feeder AC adapter plug formats

Model	DC voltage	Adapter model	AC cord types	(Representative) countries supported	Selection method	
Screw hopper	DC12V -	AD- 1200 500DJ	1200 IOUV Japan		Flat 2-pin with holes	
		YL41- 12000 500D	230 V adapter	EU countries other	Round 2-pin	

*For 12V DC, adapter and AC cord are one unit. Customers are required to make other preparations themselves.

Model	DC voltage	Adapter model	AC cord types	AC cord format	(Representative) countries supported	Select meth
	DC15V	U I 315 -15	PSE cord	K427B1 VK183 BB-P-00	Japan Mexico Brazil other	Fla 2-pi with h
All models other than		U I 315 -15	CCC cord	K207D1 H4193 BB-3C	China Thailand Taiwan Malaysia Vietnam US Brazil other	Flat 2-pi without
screw hopper		U I 315 -15	KC cord	K427B1 VK183 BB-P-00	Korea	Rour 2-pi
		U I 315 -15	CE cord	K13071 H4183 BB-M	EU countries Argentina Indonesia India Vietnam other	Rour 2-pi

*For 15V DC, adapter and AC are separate.

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Caution

- The specifications and performance figures of the products described in this catalog are based on our company's design calculations, in-house testing, individual performance testing, product usage results, and official standards/ specifications. These are provided for reference purposes only for model selection under normal circumstances. • The items listed in this catalog may be amended, have their designs changed, or be revised without notice.
- If you are considering using our products under special circumstances, please make sure to discuss technical issues with us beforehand, or conduct a test and evaluation to check the performance on your own responsibility. If damage or injury is incurred without following this process, OHTAKE-ROOT KOGYO cannot be held responsible. • For safe usage of our products, please make sure to read the instruction manual before using them.

