

Automatic Handy Screwdrivers

FEEDMAT FM503H
FM801H

F A S T E N I N G I N N O V A T I O N
f o r T H E F U T U R E



Reliable screwdriver to innovate screwfastening

FEEDMAT

FEEDMAT allows you to fasten screws with one hand several times more efficiently than with a manual screwdriver. This is achieved by an air feed system, which automatically feeds screws to the chuck on the tip instantly and allows stable, continuous screwfastening.

The feature of a product.

1 Greatly speed up screwfastening

Screws are automatically fed. Max 30 screws can be fastened in a minute with one hand as easily as with a manual screwdriver (the tightening capacity depends on the conditions).

3 Highly reliable feed system

Our own horizontal shoot-rail system is used to ensure that screws of all shapes are fed reliably.

Features

2 Widely used for ease of use

Years of improvements have made the bladehopper system, which is less prone to failures, and all other mechanisms easy to use and highly reliable.

4 Compatible with the major power supply voltage levels of the world (FM503H)

FM503H can be used safely not only in Japan but also in other regions.

Standard performance by model

In : mm

Model	Max length	Screw size									
		2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	8.0	
FM503H	25										
FM801H	30 (50)										

Note : The figure in the parentheses is the optional length.

Note : Consult us for nonstandard specifications.

Note : The maximum lengths are the capacity of the feeders.

For screw shapes of different screw size, refer to the table on the last page.

Applications



By automatically feeding headed parts such as rivets and using an air cylinder for the driver rotating part, they can be automatically inserted.



By automatically feeding threaded rivets and converting the driver rotating part into an air hammer, they can be automatically hammered in.

Structure of FEEDMAT

PRODUCT CONFIGURATION



[Hopper basket]

Put loose screws in the hopper. The hopper serves as a screw storage, and Nitto Seiko's own vertical drive truck feeds screws to the shoot rail quietly without scattering or damaging them.

[Filter plate]

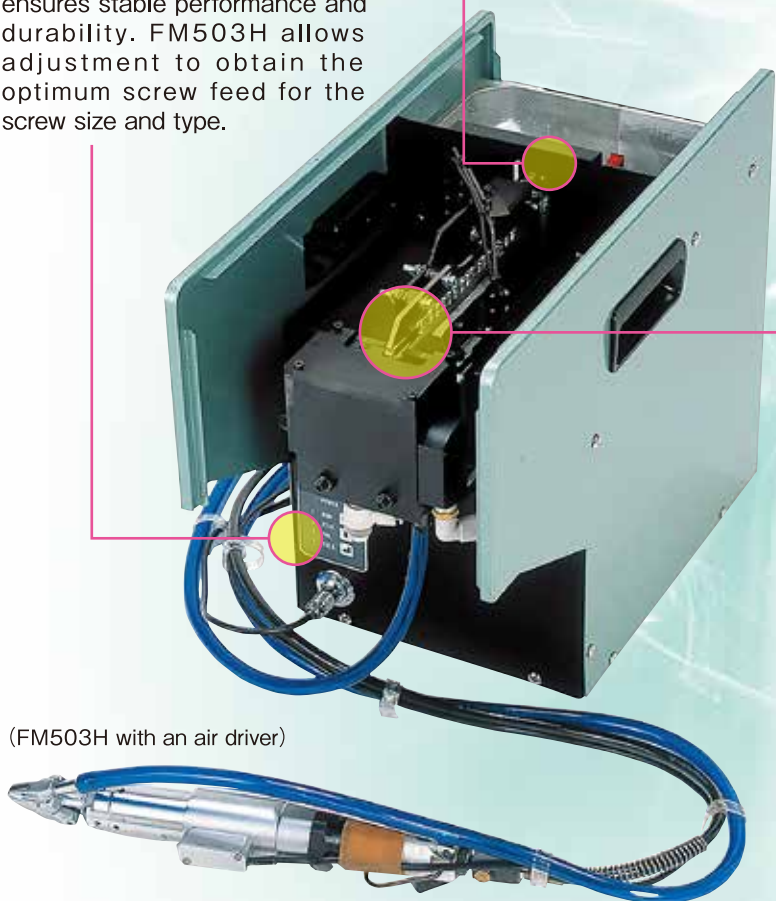
The filter plate allows the passage of only screws of the proper shape. Our own mechanism that does not damage the head and other parts of screws is employed.

[Electric control]

A compact non-contact control circuit containing a set of controls for controlling optimum screwfastening conditions ensures stable performance and durability. FM503H allows adjustment to obtain the optimum screw feed for the screw size and type.

Fasten screws easily with one hand.

Our screwdrivers greatly improve the efficiency of screwfastening in an assembly or cell production process.



(FM503H with an air driver)

[Driver unit]

Screws fed by air pressure are held and fastened by the chuck on the tip of the driver.

A compact design, maintenance-free driver unit based on years of experience is employed.

[Shoot rail]

The shoot rail aligns screws and moves them from the hopper to the escape unit. FM503H employs our own inverter system, which allows the jam-free, smooth flow of screws.

[Escape unit]

The escape unit is an important, reliable mechanism based on technologies we have accumulated over many years, which separates aligned screws from each other and instantly feeds them to the tip of the driver by air pressure.



FM503H

FM801H



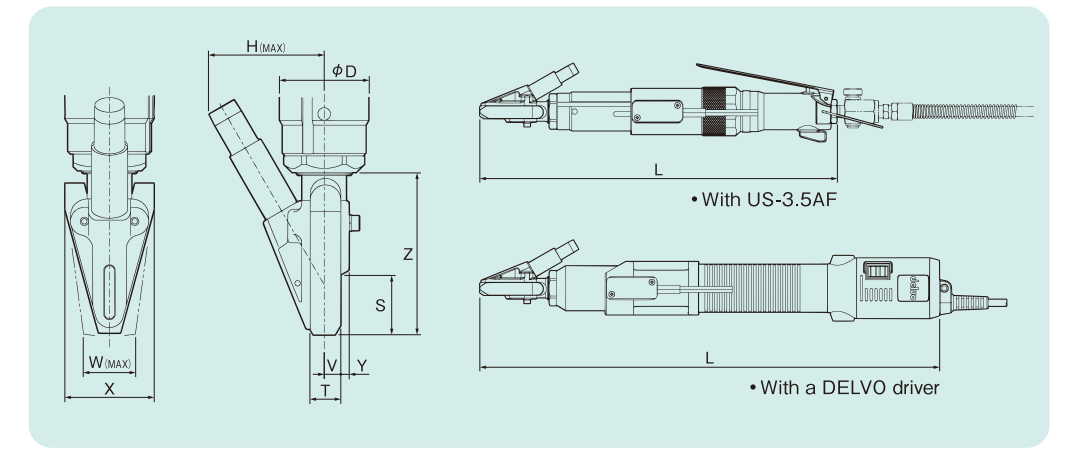
Driver selection table

The driver unit greatly influences workability. Based on years of experience, Nitto Seiko offers a variety of ideal units to allow easy, trouble-free screwfastening in any and all places.

Driver specifications			Torque (N·m)	Screw size (mm)								Set driver		
Manufacture	Driver	Model		2.0	2.3	3.0	3.5	4.0	5.0	6.0	8.0	FM503H	FM801H	
Uryu Seisaku, Ltd. ※	Air driver	US-3.5AF	0.49~1.37									●	●	
		US-4F	0.78~1.96									●	●	
		US-5F	0.98~2.45									●	●	
	Impact wrench	US-40	0.49~1.37									●	●	
		UWseries	5.88~44.1										▲	▲
		US-LT20B	0.25~0.7									▲	▲	
Torque control Screwdrivers (Push start type)	US-LT30B	0.7~2.1									▲	▲		
	US-LT40B	1.0~2.2									▲	▲		
	US-LT50B	1.5~5.5									▲	▲		
Nitto Kohki Co., Ltd.	Electric driver	DLV-4120	0.29~0.78									▲		
		DLV-4130	0.64~1.96									▲		
		DLV-4140	1.27~2.94									▲		

● Standard ; ▲ Option

Note : The torques, Which depend on the conditions, are for reference only.
Note : Air capacity will be different by type of driver.



Optional mechanisms

- Fastening screws other than cross-slot or straight-slot screws**
 - Hexagonal head
 - Hexagon socket head
 - TORX head
- Fastening short screws**
 - Thin-bit driver
 - Inversion prevention chuck
- Fastening screws in a small space**
 - Chuck with various guides
 - Chuck with a built-in stopper claw
 - Specially designed chucks
- Various detection mechanisms**
 - Detecting the lack of screws in the basket
 - No screw on the rail (FM801H)

Product Specifications

Standard specifications

	FM503H	FM801H
Power supply ※1	Single phase AC100~230V 50/60Hz	Single phase AC100V 50 or 60Hz [others than AC100V]
Power consumption	50VA	100VA
Machine weight	19kg	50kg
Basket capacity	450mL	2000mL
Working air pressure	0.4~0.5MPa	
Tightening capacity ※2	Max. 30 screws per min. (See the note below.) *	
Screw feeding hose length	3m	
Paint color	Hammer-tone blue	

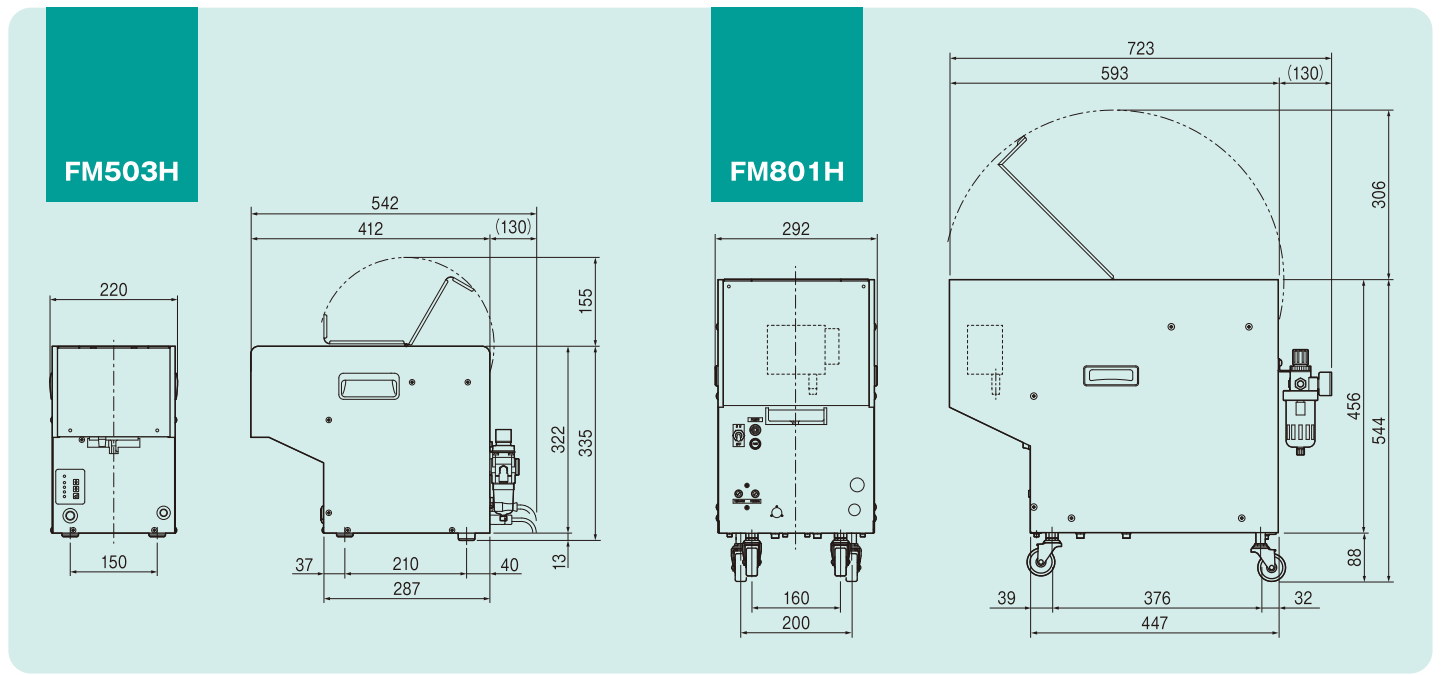
※1 The driver power need separately.
※2 The tightening capacity depends on the conditions.

Screw capacity calculation formula

Estimated screw capacity = (Basket capacity ÷ Screw volume) × 0.9

• FM503H = $\{ 450 \div (0.785 \times dk^2 \times (L+k)) \} \times 0.9$
 • FM801H = $\{ 2000 \div (0.785 \times dk^2 \times (L+k)) \} \times 0.9$

* dk=Screw head dia(cm), L=Screw stem length(cm), k=Screw head height(cm)



Standard chuck dimensions




Length condition	Screw size	Head shape					Dimension of each part for above chart							
		P,R	F,O	B,V	T	S	T	V	Z	W	X	H	Y	
l ≥ 12	2.5	●	●	●	●									
	3	●	●	●		20	8	4.5	57	10	29	36	3.5	
	3.5	●												
l ≥ 14	3				●									
	3.5		●	●	●									
	4	●	●	●	●	24	11	6	61	15	32	42	3	
l ≥ 15	4.5	●	●	●										
	5	●												
	4.5				●									
l ≥ 20	5		●	●	●	27	14	8	65	18	36	49	3	
	6	●												
	6		●	●	●	36	18	10	78	23	40	69	4	

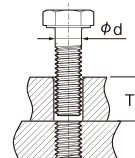
Note : For screws shorter than the above lengths, the dimensions S and Z are 2 to 7 mm shorter.
For details of head shapes, see the descriptions of head shape symbols in the last page.

Reference table of supported screw dimensions

(This table shows the range of screw dimensions that can be handled by the standard chuck unit with no performance problems.)

- ϕ 4.5bit
(Special specifications in part)
[DLV-4120]
- ϕ 6bit
[US-3.5AF, US-4F, US-40, DLV-4130, DLV-4140]
- ϕ 7bit
[US-5F, UW series]

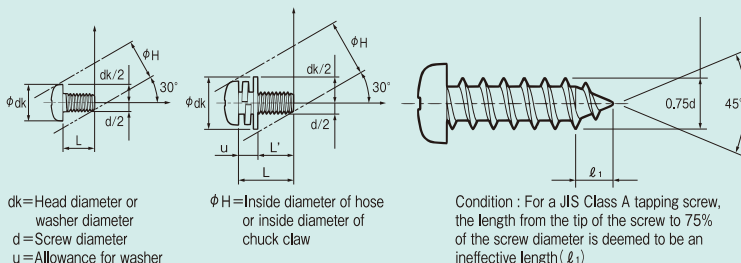
Type	Screw size	Maximum length	Head shape							
			P, R		F, O		B, (V)		T	
			Head diameter	Minimum length	Head diameter	Minimum length	Head diameter	Minimum length	Head diameter	Minimum length
Machine screw JIS Class B tapping screw TAP-TITE Screw with a built-in washer A.P. 	2.0	12	3.5	6	4.0	8	4.3	8	4.5	9
	2.3	12	4.0	7	4.6	8	4.9	8	5.2	9 10
	2.5(2.6)	16	4.5	7	5.0	9 10	5.3	8 9	5.7	9 10
	3.0	20	5.5	7 8	6.0	9 10	6.3	8 9	6.9	10
	3.5	22	6.0	7 8	7.0	10	7.3	9	8.1	12
	4.0	22	7.0	8 10	8.0	12 13	8.3	10 12	9.4	12 13
	4.5	22	8.0	9 11	9.0	12 14	9.3	11 12	10.6	12 14
	5.0	24	9.0	10 12	10.0	13 15	10.3	11 13	11.8	13 15
6.0	30	10.5	12	12.0	16	12.4	15	14.0	17	
JIS Class A tapping screw 	2.5(2.6)	16	4.5	8	5.2	10 11	5.5	9 10	5.9	10 11
	3.0	20	5.5	8 9	6.0	10 11	6.3	9 10	6.9	11
	4.0	22	7.0	10 12	8.0	14 15	8.3	12 14	9.4	14 15
	5.0	24	9.0	12 14	10.0	15 17	10.3	13 15	11.8	15 17
	6.0	30	10.5	14	12.0	18	12.4	17	14.0	19
Wood screw 	2.1	12	3.9	7	4.2	9				
	2.4	12	4.4	8	4.8	9				
	2.7	20	5.0	8 9	5.4	10 11				
	3.1	22	5.7	9 10	6.2	10 11				
	3.5	22	6.5	10	7.0	11				
	3.8	22	7.0	10 12	7.6	12 14				
	4.1	22	7.6	12 13	8.2	13 14				



Note : Models for hexagon bolts and hexagon socket head bolts are also available.
A hexagon bolt can be fastened stably when the thickness of the material to be fastened (T) is equal to or greater than the bolt size (d). (T ≥ d)
Note : The screwdrivers can be customized to support screws not listed in this table. Consult us.

Screw shapes with which FEEDMAT can be used

FEEDMAT feeds screws to the tip of the driver by compressed air supplied through a vinyl hose, and screws with which it can be used are basically limited to the shapes shown on the right. If you want to use FEEDMAT with screws not listed in the reference table of supported screw dimensions, determine whether it can be used with them or not according to the calculation expressions given to the right.



● The conditions may be a bit different from those given here, depending on the driver and screw types to use. Consult our sales representatives for more details.

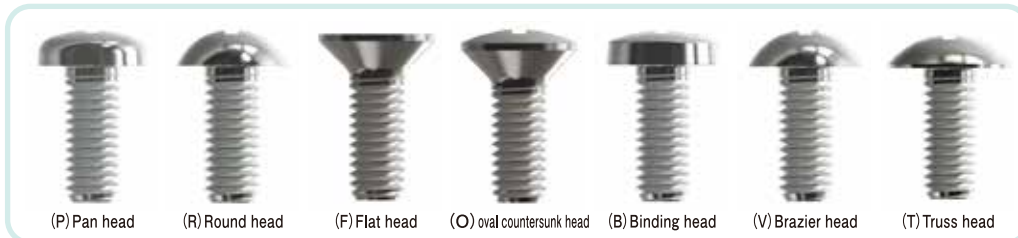
$$L \geq 2H - 0.866(dk + d) + u$$

1) Simple expression to calculate the length of screws that can be fed by air pressure

$$L_1 \approx 0.9d$$

2) Expression to calculate the ineffective length of tapping screws

Description of screw head shape symbols



NITTOSEIKO CO., LTD.

Assembly Machine Division / Shiroyama Plant
Global Sales Section.

2, Shiroyama-chou, Ayabe-city, Kyoto 623-0003, Japan
TEL: +81-773-42-1290 FAX: +81-773-45-3680
URL: <https://www.nittoseiko.co.jp/en.html>



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