

*Advanced
Computer Controlled
Nutrunner*

Servo Nutrunners

Multi-type / Single-type

AFC1500 **SERIES**

CHALLENGING THE FUTURE FOR FASTENING

ADAPTS TO AN
OPEN NETWORK

EQUIPED WITH ETHERNET FOR
NEW MULTI (MULTI-2A(E))

AFC1500 SERIES



3 PROPOSALS FOR FASTENING!

Cost • Flexibility Performance

■ Space Saving

The most advanced digital technology is used for the controller, and it was possible to succeed dramatically in reducing the number of parts. The Units have been made more compact along with the Control Panel which is also much more simple resulting in the overall possibility to reduce cost. In the wide range of requirements for fastening, we would like to promise our great solution by simple software selection, and easy selectable module on common hardware platform.

■ Wiring Saving

Adapted global network system will reduce the number of wiring and build an advanced system. We have prepared a flexible control module for these needs. (Devise NET, Inter BUS, Profi BUS, CC link, ETHERNET, EtherNet/IP)

Visual Performance

■ User Friendly Operation

In order to adapt the new FA field, we have prepared a flexible Man-Machine-Interface. With regards to setting up the system, in a wide range information such as fastening parameters, fastening result, analyzing data and maintenance data can be operated easily by using Windows base software. Using an on-demand help function, the operator can be assisted. A PC or other display unit can be used depending on the needs. A stationary or portable selection can also be made.

Quality Performance

■ Total In-House Manufacturing

We are challenging to develop a complete manufacturing process include torque transducer which is the most sophisticated part of fastening system. We are offering a quality trace certificate for assure fastening quality.

The system has a TOOL ID (ID information include Torque calibration, Product type, etc.) which also recognizes error settings through a FP function maximizing the total protection of the system.

The fastening system is guaranteed for quality and durability based on ISO5393.

Also a skilled service group perform preventive maintenance, modification, repairs, and after service.



FEATURES FOR THE AFC1500 SERIES

The AFC1500 system includes multi-unit, We have a simple solution to these new

HARDWARE FUNCTION

- Control Interface :
Discreet I/O, Field Bus
- Communication Interface :
PC Connector: User Console
Display: RS422 Touch Panel Adapted
Data-Out1 Printer Output
Data-Out2 PLC Output
Data-In Barcode Input
- Spindle Control Communication :
- RS485 High speed exclusive communication 1CH
User Console 1CH
- Signal for External Monitor :
Torque, Angle pulse, Current
TOOL ID Function :
Equipped in Pre-amp
Ethernet

SETTING FUNCTION (by using user console)

- Free Format Data Out Function
Output data selection and free format function will meet customers needs.
Various layouts for output signals to a PLC, layouts for Quality•Maintenance information, etc. (Depending on the purpose a variety of combinations can be realized.)
- Graphical Setting Parameter Function
Graphical presetting features are provided for simple and easy presetting.
Setting through actual fastening image.
- Fastening sequences can be prepared simply for exclusive demands.

FASTENING FUNCTION

- Fastening Method :
Torque control, Angle control, Current control (CW / CCW)
Function of torque recovery (Solution to torque reduction)
- Monitoring : Torque, Angle, Torque rate, Time, Current
- Fastening Sequence : 16 types, For each; max. 100 steps
- Fastening Parameter : 32 groups
- Fastening Range : 1Nm – 5000Nm
- Maximum Spindle Connections : 31spindles

PROTECTION FUNCTION

- Torque transducer self-diagnoses
- Off-set torque checking
- Diagnoses of different types of Tool / Amp (Tool ID system)
- Equipped with Servo and motor protection function.
(Over current, Over load, Abnormal voltage, Temperature abnormal, etc.)

Environment

- A Compact and lightweight system. A system structure using a minimum amount of parts.
- Usage of minimum energy

Cost

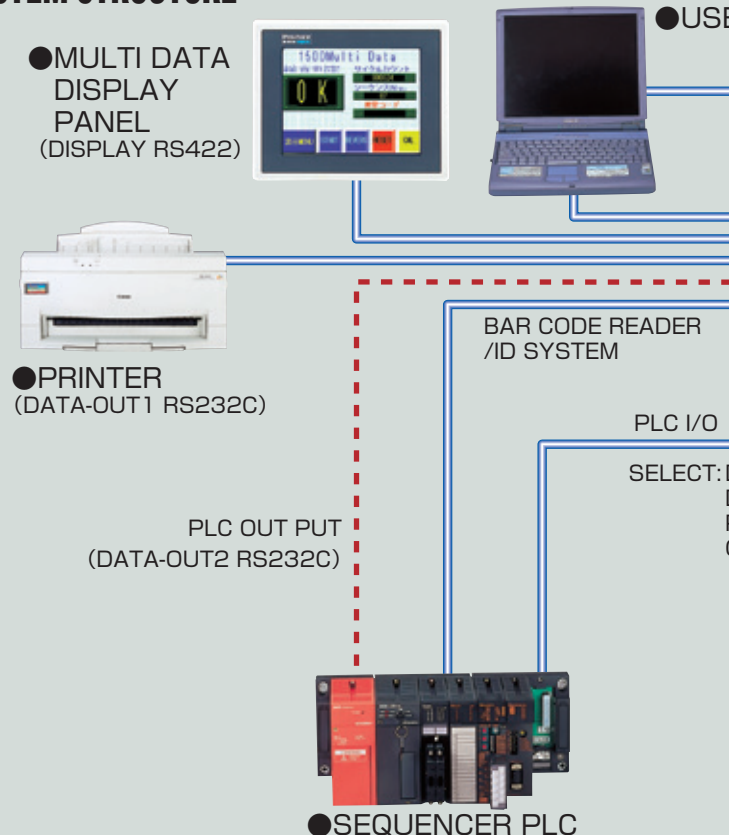
- A simple composition of hardware by simply building up
- All-In-One unit

Reliability

- Protection Function
- Tool ID System
- Transducer with Pre-amp
- Resolver Motor

Multi System

SYSTEM STRUCTURE



MULTI-UNIT

A maximum of 31 spindles, high speed multi-spindle controls can be used. A small, light body with several sequence functions provide a flexible communication function. A wide range of input voltage (AC100-220V or equivalent) and it is also environment friendly providing a low consumption electricity (15W) level. The communication function is the next generation of FA needs and a variety of controls and information networks such as Device-Net, Inter Bus, Profi-Bus, AB Company Bus-system, CC link and others can be used by changing a limited amount of modules. In addition, we recommend wire savings as well. New MULTI-2A(E) is equipped with ETHERNET.

AXIS UNIT

We are introducing a fully integration of servo and fastening control with the latest RISC-CPU technology. Fitted with an intelligent ID system on the Pre-amp of the Tool, this contributes to the high quality of fastening.

Also considering the commonality of the unit for reduction of spare parts contributing.

Each axis unit has a function to memorise about 10,000 fastening results.

NUT RUNNER TOOL

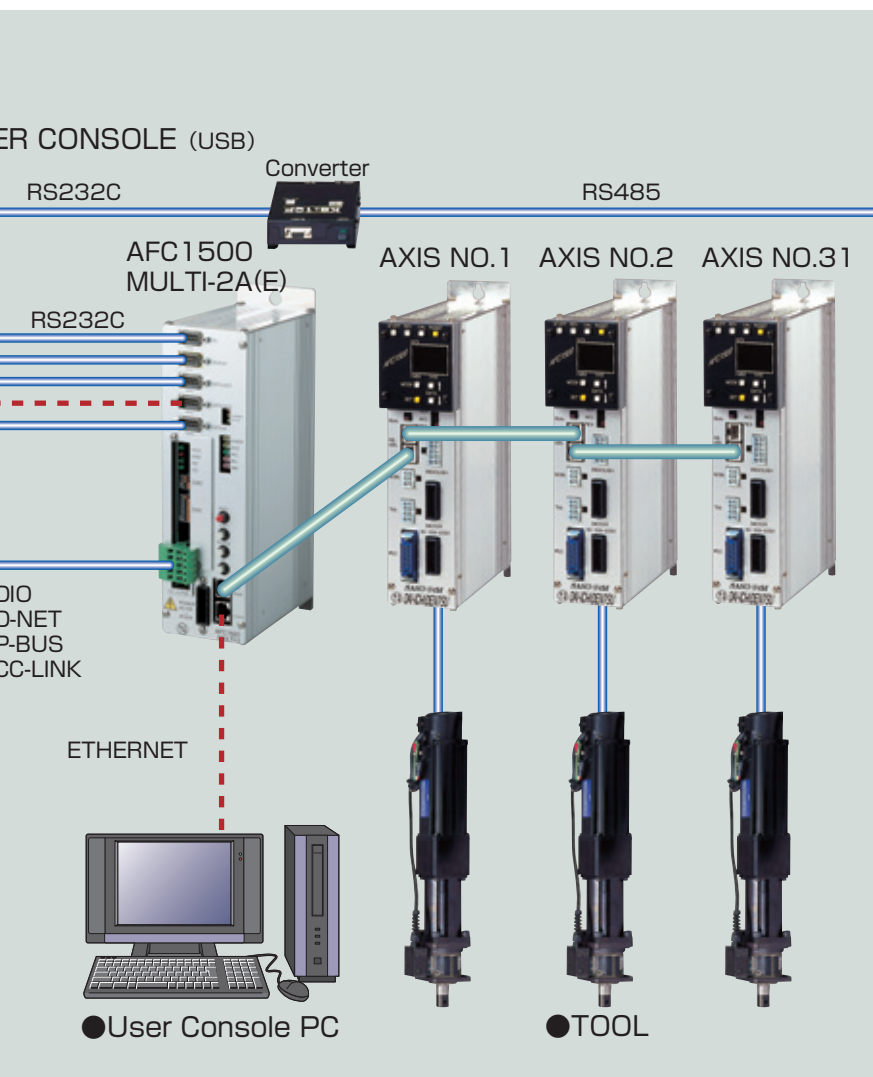
The reliable PM servo motor has been equipped for nut runner system, also composed of a gear torque transducer which is certified at A class under ISO5393. (Durability test performed over 1 million continuous cycles.)

High level quality guaranteed by Tool ID system.

Resolver used for angle monitoring, which does not use IC or electronic elements, is durable against vibration and dust/mist type of harsh environments allowing a wide range of usage.

Motor and resolver cable integrated into one compact design which reduce the number of homerun cable.

axis unit, and tool for multi-fastening system.
generation of fastening.



Single Type

The Single type is composed of 3 items, axis unit, tool and homerun cable.

Economical control system which offers many of the features as the multi system.

Suited for 1 spindle (or few spindles), and conveniently used for robotics application.

A multi-spindle application can also be used by synchronized feature.

Parameter data can be entered by using the display panel mounted on front panel.

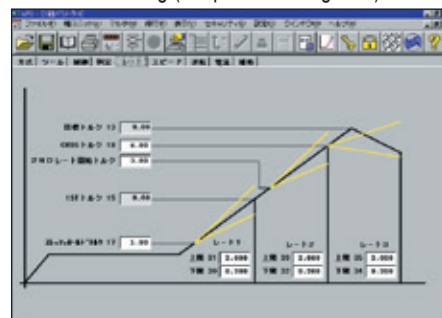
User console software is available.

For Windows
HMI (Human Interface)
User Console
(English / Japanese / Chinese / Korean)

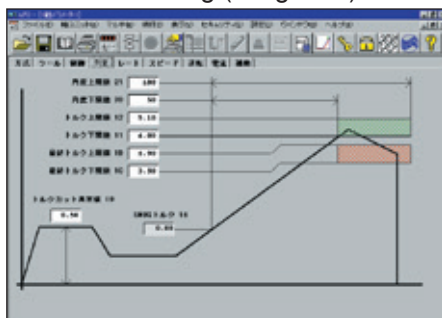
Sequence Setting Screen



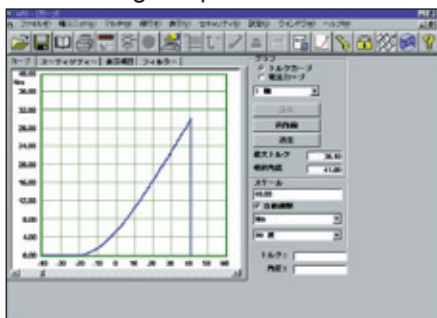
Parameter Setting (Torque Rate Judgment) Screen



Parameter Setting (Judgment) Screen



Fastening Torque Curves Screen



Function Chart

- ① Parameter Setting
- ② Sequence Setting
- ③ Fastening Torque Curves
- ④ I/O Free Format Setting
- ⑤ Statistical Calculations
- ⑥ Data Save / Data Read / Printing
- ⑦ Tool Information
- ⑧ Others

Can be operated on PC(Win XP,7,8 etc)

TOOL·UNIT SPECIFICATIONS

※ Detailed drawings are available on DXF file.

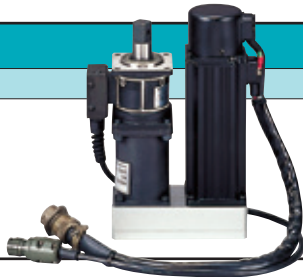
STRAIGHT TYPE



Model	Max.Torque(Nm)	Max. RPM (rpm)	Total Length (mm)	Weight (kg)
NFT-201RM1-S	19.6	500	281	2.1
NFT-301RM2A-S	29.4	600	337	2.2
NFT-401RM1-S	39.2	250	281	2.1
NFT-801RM3-S	78.4	500	368	4.5
NFT-132RM3-S	127.4	395	377	5.5
NFT-202RM3-S	196	220	398	6.0
NFT-302RM3-S	294	150	416	9.0
NFT-502RM4-S	490	155	450	13.5
NFT-802RM4-S	784	95	516	15.0

※ From 5Nm tool is available

U TYPE



Model	Max.Torque(Nm)	Max. RPM (rpm)	Total Length (mm)	Weight (kg)
NFT-101RM1-S1U	9.8	500	141(150)	2.5
NFT-201RM1-SU	19.6	500	141(150)	2.5
NFT-401RM1-SU	39.2	250	141(150)	2.5
NFT-132RM3-SU	127.4	395	169(221)	6.5
NFT-202RM3-SU	196	220	190(221)	7.0
NFT-302RM3-SU	294	150	217(221)	10.0

※ Be careful of dimension. (Refer to tool specification.)

ANGLE TYPE



Model	Max.Torque(Nm)	Max. RPM (rpm)	Head Length (mm)	Weight (kg)
NFT-201RM1-A55	30	321	45	4.2
NFT-401RM1-A55	55	160	45	4.2
NFT-801RM3-A130	122	321	59	8.5
NFT-132RM3-A250U	198	253	67.5	11.3
NFT-202RM3-A250U	250	142	67.5	11.8
NFT-302RM3-A550	457	96	91	22.2

Motor cable direct type



Motor cable direct type
Motor connector direct type for overseas is also available.
It's interchangeable to the standard connector.

HIGH SPEED TYPE (Straight / Offset)

Model	Max.Torque(Nm)	Max. RPM (rpm)
NFT-051RM1-S/O	4.9	1100
NFT-101RM1-S/O	9.8	1100
NFT-201RM3-S/O	19.6	790
NFT-401RM3-S/O	39.2	790
NFT-601RM3-S/O	58.8	790

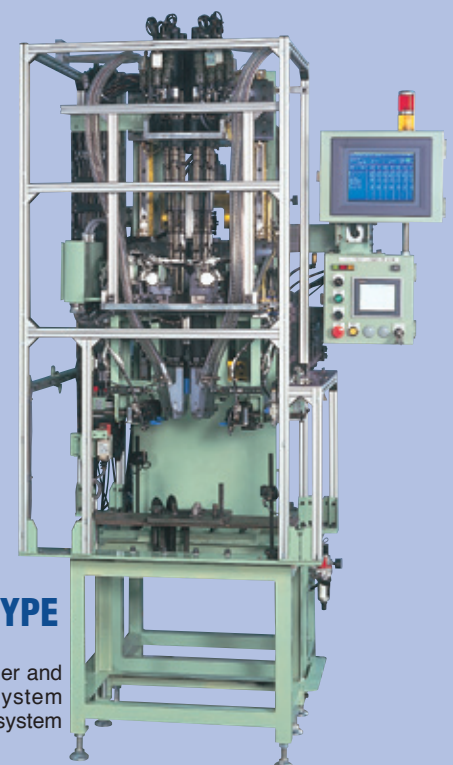
※ Model besides catalogue available. Contact us if required.

APPLICATIONS



COLUMN TYPE

Used for an automatic assembly line.
We design and manufacturing different types of systems
under customer's specifications.
The handy type is also available.



AUTOMATIC FEED TYPE (PARTS FEEDER)

The combination of a nut runner and
an automatic bolt feeding system
allows a complete automatic system
for fastening.
Various bolts and nuts can be
automatically fed through the system.

OFFSET TYPE



Model	Max.Torque(Nm)	Max. RPM (rpm)	Total Length (mm)	Weight (kg)
NFT-201RM1-O	19.6	500	358	2.7
NFT-301RM2A-O	29.4	600	436	3.0
NFT-401RM1-O	39.2	250	380	3.0
NFT-801RM3-O	78.4	500	457	6.8
NFT-132RM3-O	127.4	395	497	8.0
NFT-202RM3-O	196	220	533	9.5
NFT-302RM3-O	294	150	566	13.5
NFT-502RM4-O	490	155	642	23.5
NFT-802RM4-O	784	100	738	31.0

※ From 5Nm tool is available

SPINDLE ADAPTER



Model	Max.Torque(Nm)	Total Length (mm)	Stroke (mm)	Square Drive (mm)
S P 2 0 1	19.6	156	25	9.52
S P 4 0 1	39.2	180	40	9.52
S P 8 0 1	78.4	218	50	12.7
S P 2 0 2	196	237	50	15.8
S P 3 0 2	294	240	50	19.0
S P 5 0 2	490	276	50	25.4

※ A custom-designed spindle available.

LARGE TYPE



Model	Max.Torque(Nm)	Total Length (mm)	Max. RPM (rpm)	Weight (kg)
NFT-113R4H-S	1000	538	95	21
NFT-153R4H-S	1500	553	70	27
NFT-303RM5-S	2940	836	39	70.0
NFT-503RM5-S	4900	800	22	150

※ Model besides catalogue available. Contact us if required.

UNIT

Model	Width (mm)	Height (mm)	Depth (mm)	Weight (kg)
MULTI-2A (E)	70	255	160	1.4
SAN4II(A)-24 (40/30Nm)	60	255	160	1.4
SAN4II(A)-40 (300Nm)	74	255	160	1.6
SAN4II(A)-120T (800Nm)	91.5	255	161	3.1
SAN4II(A)-120W (5000Nm)	125	255	161	3.8

E : Ethernet Type A : Power Separated Type

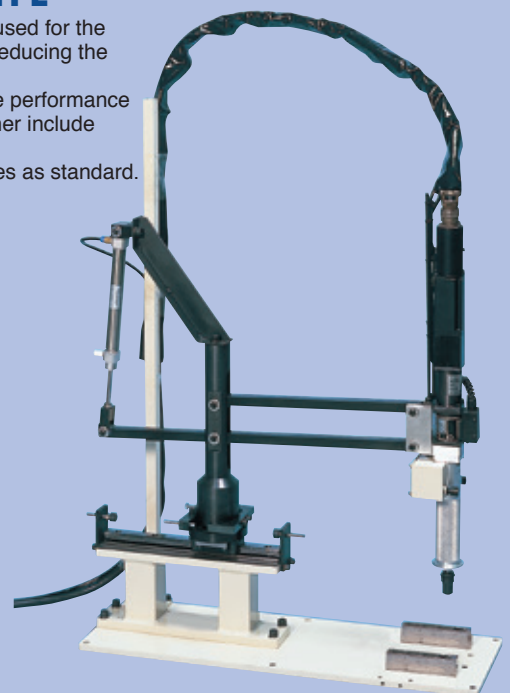


ROBOT TYPE

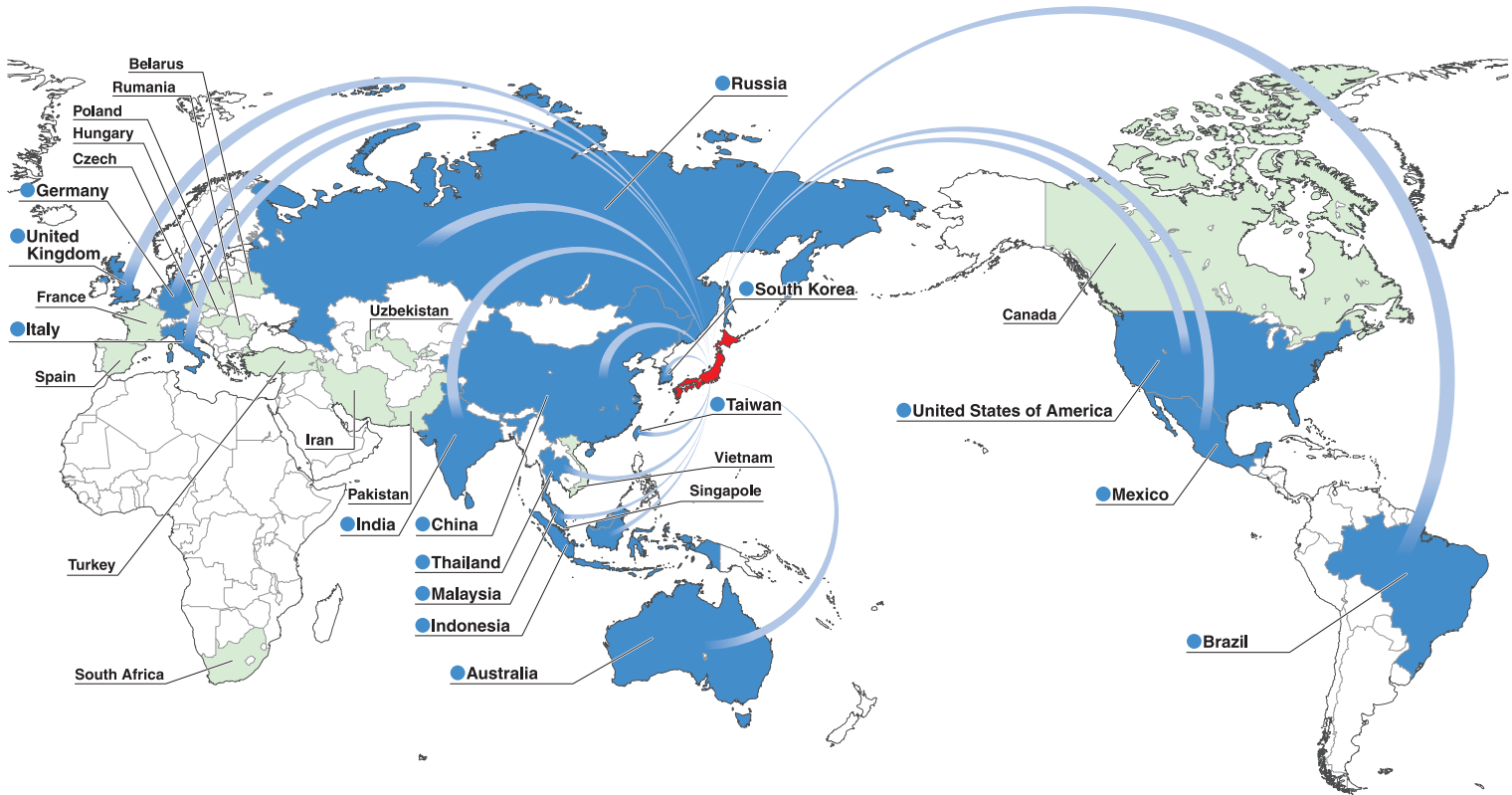
The emphasis of this system is to be able to use the flexible fastening. Bolts or nuts can be fed by automatically. Can be mounted on multi articulated arm robot.

SMOOTH ARM TYPE

The balancing cylinder is used for the smooth arm structure for reducing the operator load. The system offer the same performance as the single type nut runner include fastening accuracy. The FP function also comes as standard.



Global Delivery Map



※ ■ Service Available
■ Delivery Record



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● Specification may be changed without notice due to system improvement. ● Actual color may be different than they appear on this brochure.