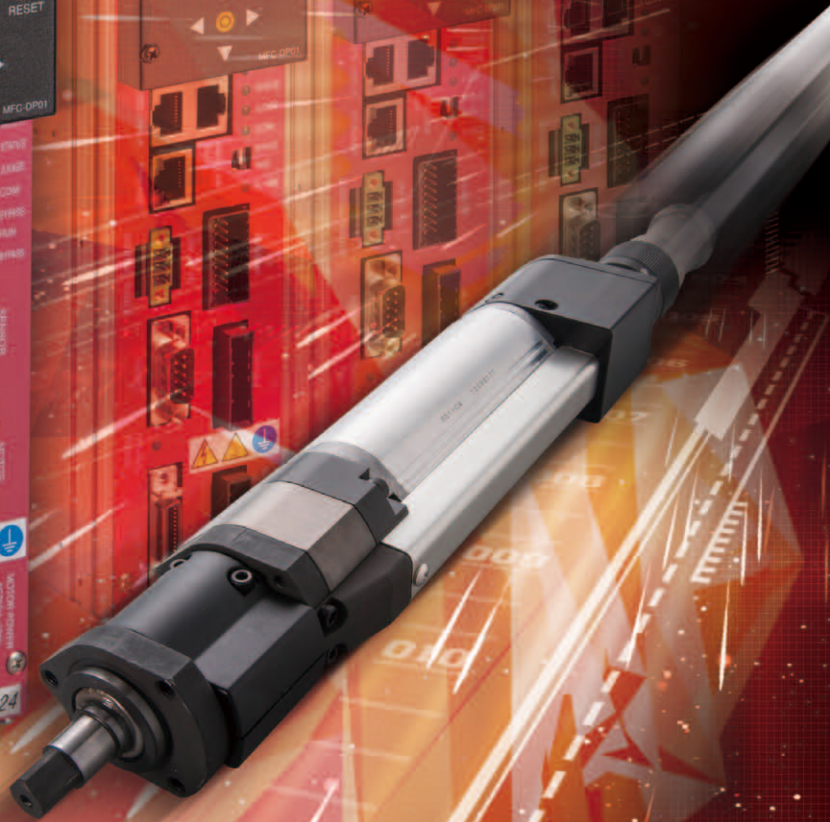


AFC3000 Next Generation

DDK Nutrunner Series

AFC3000

Next Generation

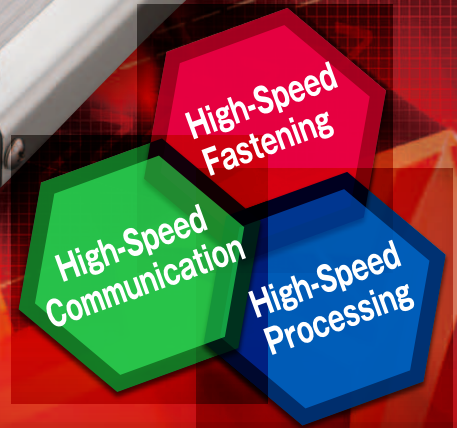


DAI-ICHI DENTSU LTD.

World's First! High-Speed Seating Mechanism

AFC3000 Series

High-Speed Seating Mechanism



Inter-Axis High Speed Communication

Ethernet applies for as a standard specification, for communication between User Console (PC Software) and Server.

- Inter-Axis Communication at high speed by original communication method
- State-of-the-art CPU is embedded to increase the internal processing speed (Control/Communication)
- Communication of quality data and curve data at high speed
- Sequence control is available
- Responding to 100Mbps communication speed
- Contributed to reduce in time of data communication
- Easy connection with Upper PC (Server)

Controller communalization

Communalized all series (Nutrunner, Hand Tool, Servo Press)
Multi Unit function is integrated into Axis Unit

New Function

Multi Unit function and PLC function is integrated (PLC Function is integrated into Axis Unit while keeping Multi Unit function)
Various combinations are available as customer's needs.(Details on page 4)

Easy Control of Multiple Spindles (Embedded with Multi function)

Various combinations are available as customer's needs.(Details on page 4)

Data Storage Function (Standard)

10,000 Fastening Results + 100 Torque Curve
Increase in internal memory capacity
Quality data = 12,000 results/Curve data = 100 results/Abnormal record = 500 results

Safety Function (Standard)

Power Separation.....Control power and Drive power are separated.
External STOP Signal...Independent emergency stop signal can be input even when connecting to Fieldbus.

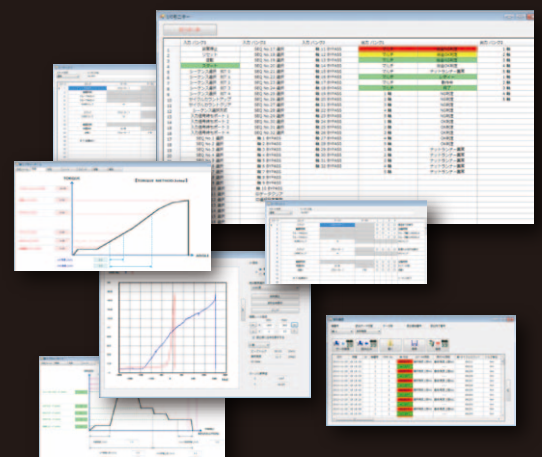
Display Unit

Display Capability.....Improved and better operability.
6 digits/2 stages display are adopted to enhance display contents.
Adopted Arrow key with improved operability.

Software (User Console)

HMI assumes the functions of 1500 series, Fastening parameter setting, Result monitor function, Curve display function, Tool information read function

Windows Version HMI (Human Interface)



- | Fastening Setting Screen |
- | Fastening Sequence Screen |
- | Fastening Curve Screen |
- | I/O Free Format Screen |
- | Data Storage, Read, Print Screen |
- | Nutrunner information acquisition screen |
- | Confirmation screen |

Installed Ultrahigh-Speed Nutrunner

High-Speed Seating Function...

Improvement
of
Quality

Eliminate torque error judgment by overshoot

Reduction
of
Processing
Time

Contribute to reduce machine cycle time drastically.

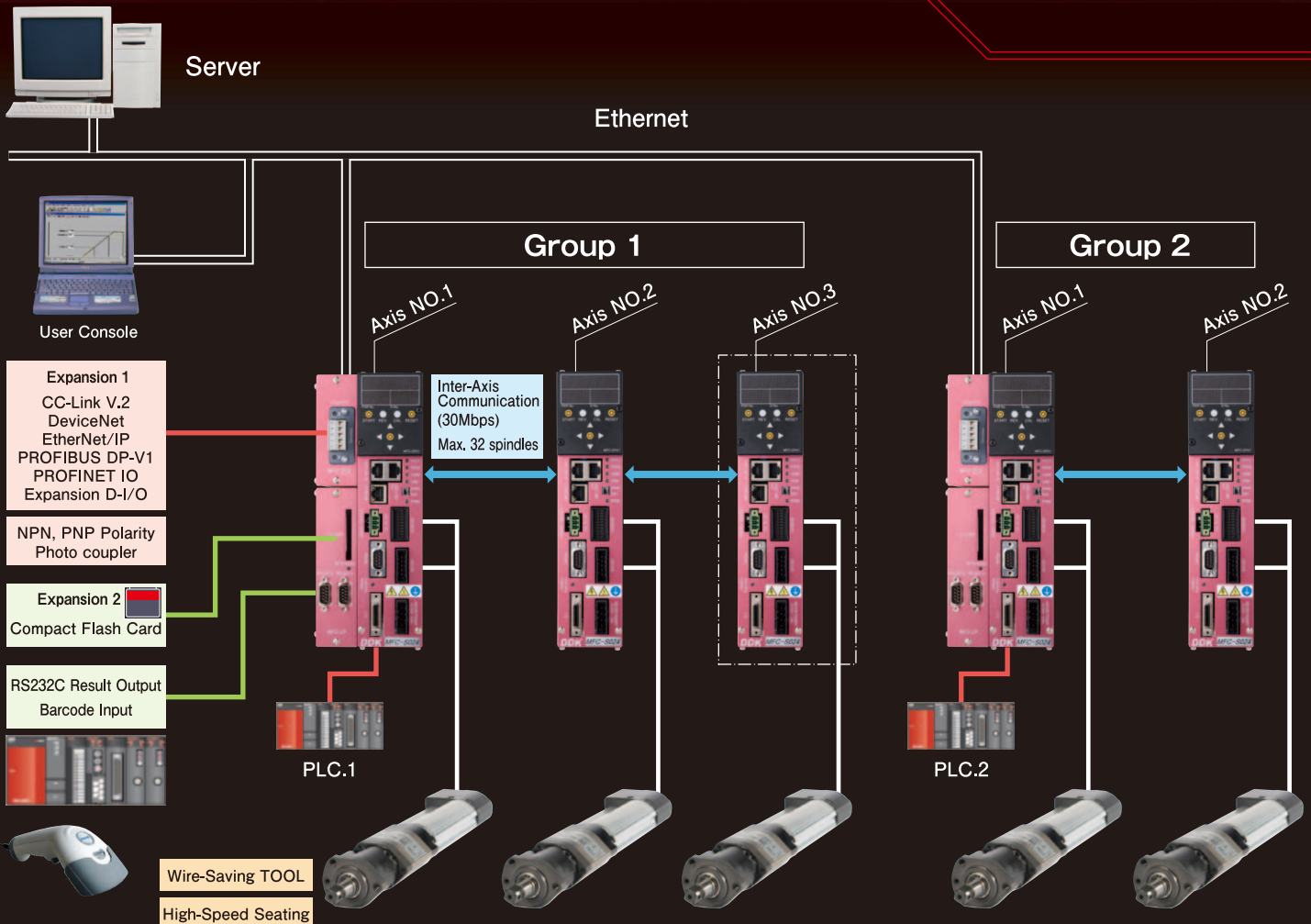
Example:
In case of pre-fastening
M6 × 1.0P bolt with 10 threads
In case of 600 rpm = 1.0 sec
In case of 1000 rpm = 0.6 sec

Reduced
by
0.4
seconds

Simplification
of
Set Up Value

Simplify setting and adjustment per each work piece.
Reduce operator's control such as limit in number of pre-fastening threads.

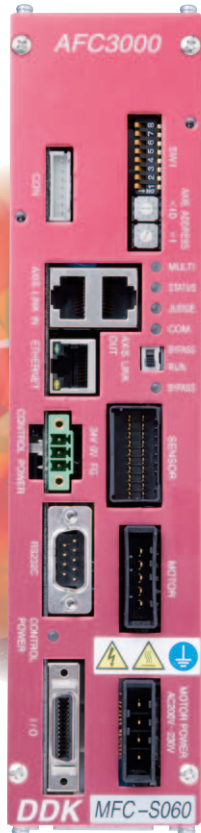
We introduce the new Nutrunner system based on nearly 40 years of experience and performance since developed in 1975.
We are in progress to develop the new system that can be for the common platform for Nutrunner, Hand Tool and Servo Press system in the assembly process.
This system is designed to offer high reliability and productivity and meet flexibly to market needs.
In addition, development that conform each product standard (CE, RoHS, UL) is in progress.



AFC3000

Multi Unit & Expansion Unit

Standard Unit



MFC-S024
S060

Optional Accessories

MFC-DP01
Display Capability... Improved and better operability.

- 6 digits/2 stages display are adopted to enhance display contents.
- Adopted Arrow key with improved operability.

MFC
Fieldbus Connector

Inserted Slot

- CC-Link V.2(V.1.10)
- DeviceNet
- EtherNet/IP
- PROFIBUS DP-V1
- PROFINET IO
- EtherCAT
- CC-Link IE Field
- Expansion D-I/O Connector Input: 32ch/Output: 32ch

MFC-CF
Record Data Expansion Memory
CF Card Slot
CF ACCESS LED
Expansion RS232 Connector



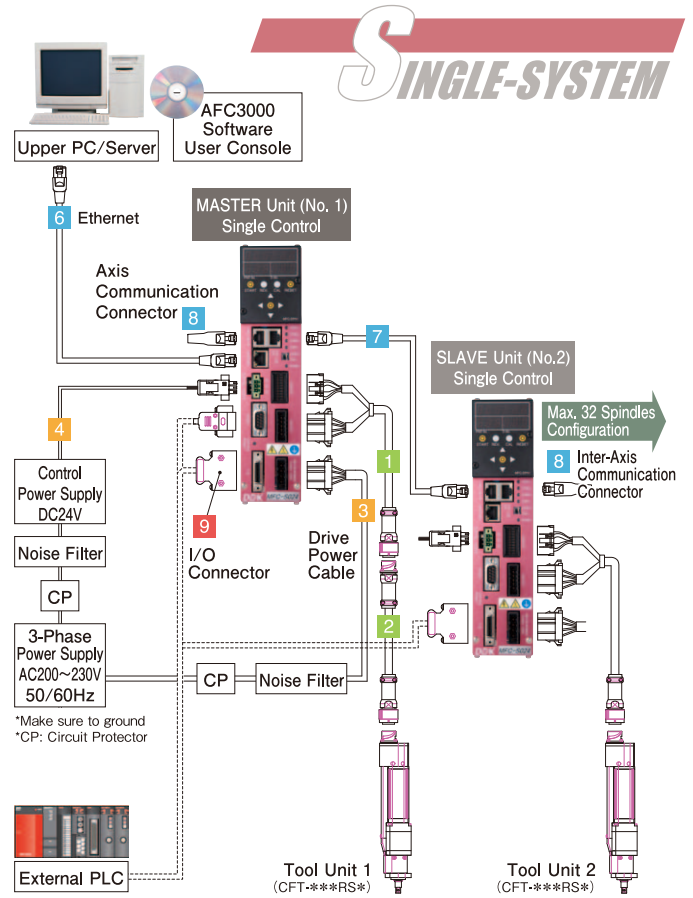
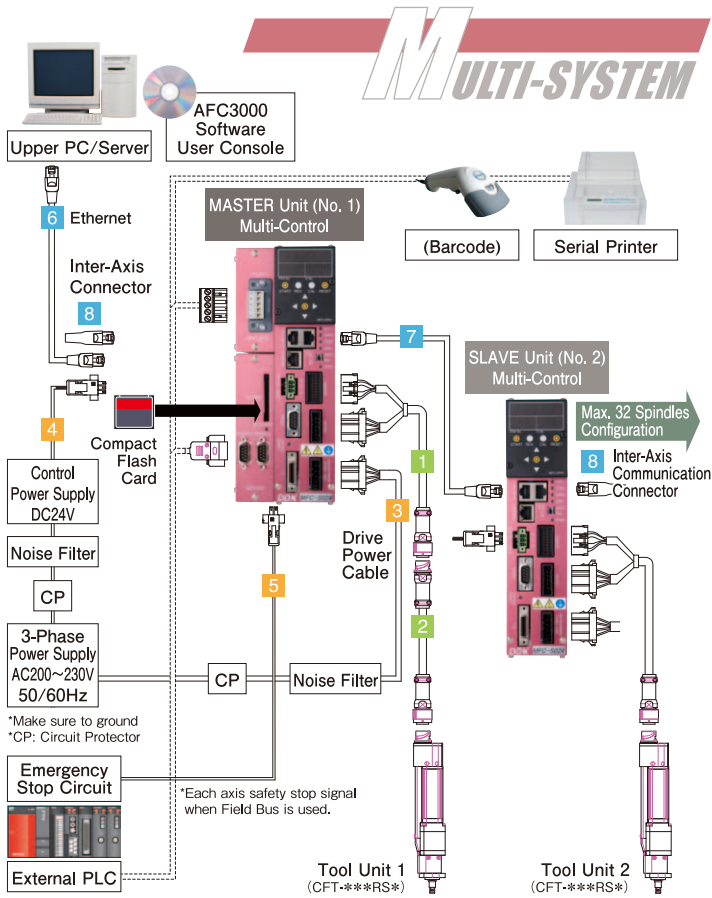
Axis Unit	Max. Current	Applicable Tool	Display	Expansion 1	Expansion 2
MFC-S008	8A	MFT-***M10-*			
MFC-S024	24A	CFT-***RS1-*	MFC-DP01 Simple Display	Refer to the right	MFC-CF Expansion Memory
MFC-S060	60A	CFT-***RS3-*			
MFC-S120	120A	NFT-***RM4H-*			
		NFT-***RM5-*			

Unit Model	MFC-S008	MFC-S024	MFC-S060	MFC-S120
Input Power	Single phase AC100V~230V (±10%)	3-Phase AC200V~230V (±10%)		
Control Power	DC24V ±10%			
Current Consumption	0.5A			1.0A
Peak Maximum Current	5.6A	17.0A	42.4A	84.8A
Transformer Capacity	0.3KVA×Spindles		0.8KVA×Spindles	4.0KVA×Spindles
Ambient Temperature	0°C~+50°C			
Ethernet	PC / Command Communication port			
RS232C communication	9600 / 19200 / 38400 bps			
External Analog Monitor Output	Torque analog voltage, Angle pulse, CW/CCW pulse			
Max spindle	32 spindles			
Standard I/O	Input 12ch / Output 12ch (NPN and PNP connectable)			
Display	6 letters × 2 lines 7 segments LED display, Function switch 9pcs			

Unit Model	①Mounting Connector	Unit Classification
MFC-DT	Expansion D-I/O (Input:32ch/Output:32ch)	Expansion Unit 1
MFC-FB	Fieldbus	Expansion Unit 1
MFC-CC	CC-Link V.2	Expansion Unit 1
MFC-DN	DeviceNet	Expansion Unit 1
MFC-PB	PROFIBUS DP-V1	Expansion Unit 1
MFC-EN	EtherNet/IP	Expansion Unit 1
MFC-PN	PROFINET IO	Expansion Unit 1
MFC-EC	EtherCAT	Expansion Unit 1
MFC-CI	CC-Link IE Field	Expansion Unit 1
MFC-CF	Compatible to Compact Flash card Expansion RS232C (2ports)	Expansion Unit 2
MFC-CFEN	Compatible to Compact Flash card Expansion RS232C (1ports), Ethernet (1ports)	Expansion Unit 2



System Configuration (Wiring Diagram)



No.	Cable/Connector	Standard Length(m)	Model	Remark
1	Standard Tool Cable (MFT)	3/5/10	C30-FT2-M*	*: Length
	Standard Tool Cable (CFT)	5/10/15	C30-FT1-M*	
	Standard Tool Cable (NFT RM4H)	5/10/15	C30-FW4-M*	
2	Extension Tool Cable (CFT)	5/10/15	C30-FT1-*-E	
3	Drive Power Cable (8A/24A/60A)	2	C15-D1-M2	Including Standard Unit
	Drive Power Cable (120A)	2	C15-D2-M2	Including Standard Unit
4	Control Power Connector	—	MC1.5/3-STF-3.81	
	Control Power Cable	2	C30-DC1-M2	

No.	Cable/connector	Standard Length(m)	Model	Remark
5	STOP Signal Connector	—	MC1.5/2-STF-3.81	Including Expansion Unit 1
	STOP Signal Cable	2	C30-XA1-M2	
6	PC Communication Cable (Cross)	3	C30-UL1-M3	For Direct Connection
	PC Communication Cable (Straight)	3	C30-UL2-M3	For Via Hub
7	Axis Communication Cable	0.3	C15-A3-M03	
8	Axis Communication Connector	—	C30-AL2	
9	Standard I/O Connector	—	10126-3000PE	Including Standard Unit
	Standard I/O Cable	2/3	C30-SU1-M*	*: Length

Tool Model CFT-201 RS1-S *-*

① Max. Torque		② Motor Capacity		③ Tool Type		④ Connector Direction		⑤ Option	
Symbol	Max. torque	Symbol	Capacity	Symbol	Shape	Symbol	Direction	Symbol	Specification
101	10N·m	RS1	70W	S	Straight	None	Upper		Standard
201	20N·m	RS3	200W	O	Offset	L	Lower	H	High-speed seating specification
281	28N·m								
401	40N·m								
801	80N·m								
132	130N·m								
202	200N·m								
302	300N·m								

Tool Model	Max. Torque [N·m]	Max. Speed [rpm]	Min. Speed [rpm]	Max. Rate [N·m/deg]	Applicable Unit
CFT-101RS1-S	10	3,000	1	99.999	MFC-S024
CFT-201RS1-S	20	1,293	1	99.999	MFC-S024
CFT-281RS1-S	28	992	1	99.999	MFC-S024
CFT-401RS1-S	40	712	1	99.999	MFC-S024
CFT-801RS3-S	80	1,015	1	99.999	MFC-S060
CFT-132RS3-S1	130	574	1	99.999	MFC-S060
CFT-202RS3-S	200	387	1	99.999	MFC-S060
CFT-302RS3-S	300	260	1	99.999	MFC-S060
CFT-201RS1-O	20	1,221	1	99.999	MFC-S024
CFT-401RS1-O	40	712	1	99.999	MFC-S024
CFT-801RS3-O	80	1,015	1	99.999	MFC-S024
CFT-132RS3-O1	130	574	1	99.999	MFC-S060
CFT-202RS3-O	200	387	1	99.999	MFC-S060

Spindle Unit Model CFT-SP401 40 V

Spindle Unit Model	① Max. Torque [N·m]	② Standard Stroke [mm]	③ Installation Direction V: Vertical / H: Horizontal	Applicable Unit
CFT-SP401-40V	40	40	Vertical	CFT-101RS1-S CFT-201RS1-S CFT-281RS1-S CFT-401RS1-S
CFT-SP801-50V	80	50	Vertical	CFT-801RS3-S
CFT-SP132-50V	130	50	Vertical	CFT-132RS3-S
CFT-SP202-60V	200	60	Vertical	CFT-202RS3-S
CFT-SP302-70V	300	70	Vertical	CFT-302RS3-S

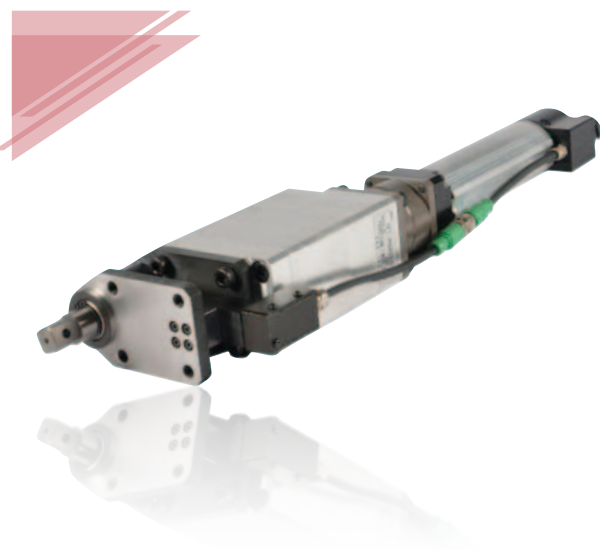
*Contact us tool specification except those listed.

Straight (CFT)



Model	Max. Torque [N·m]	Max. Speed [rpm]	Min. Speed [rpm]	Weight [kg]	Square Drive [mm]	Total Length L [mm]
CFT-051RS1-S	5	1,330	1	1.16	9.5	293.4
CFT-101RS1-S	10	3,000	1	1.3	9.5	275
CFT-201RS1-S	20	1,293	1	1.4	9.5	290
CFT-281RS1-S	28	992	1	1.4	9.5	293
CFT-401RS1-S	40	712	1	1.4	9.5	293
CFT-801RS3-S	80	1,015	1	3.4	12.7	372
CFT-132RS3-S1	130	574	1	3.4	12.7	372
CFT-202RS3-S	200	387	1	4.3	15.9	390
CFT-302RS3-S	300	260	1	5.8	19	440

Offset (CFT)



Model	Max. Torque [N·m]	Max. Speed [rpm]	Min. Speed [rpm]	Weight [kg]	Square Drive [mm]	Total Length L [mm]
CFT-201RS1-O	20	1,221	1	2.0	9.5	362
CFT-401RS1-O	40	712	1	2.4	9.5	368
CFT-801RS3-O	80	1,015	1	6.0	12.7	458
CFT-132RS3-O1	130	574	1	7.5	15.9	484
CFT-202RS3-O	200	387	1	8.2	15.9	474

Straight (MFT)



Model	Max. Torque [N·m]	Max. Speed [rpm]	Min. Speed [rpm]	Weight [kg]	Square Drive [mm]	Total Length L [mm]
MFT-080M10-S1	0.8	2,220	2	0.65	Hex6.35	215.5
MFT-160M10-S	1.6	1,250	1	0.68	Hex6.35	215.5
MFT-240M10-S	2.4	800	1	0.68	Hex6.35	215.5

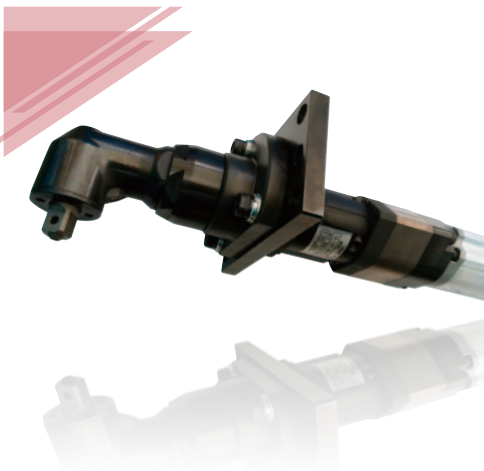
Spindle Adapter (CFT)



Model	Max. Torque [N·m]	Square Drive [mm]	Weight [kg]	Overall [mm]
CFT-SP401-40V	40	9.5	0.4	165
CFT-SP801-50V	80	12.7	1	217
CFT-SP132-50V	130	15.9	1.4	230
CFT-SP202-60V	200	19	1.9	253
CFT-SP302-70V	300	19	2.7	282

*Vertical Fastening.

Angle head (CFT)



Model	Max. Torque [N·m]	Square Drive [mm]	N/R	Max. Output Torque [N·m]	Max. Speed [rpm]
RA025-CFT	25	9.5	CFT-101RS1-S	13.9	1941
RA040-CFT	40	9.5	CFT-201RS1-S	27.8	836
RA060-CFT	60	12.7	CFT-401RS1-S	60	460
RA130-120-CFT	130	12.7	CFT-801RS3-S	111.2	656
RA200-120-CFT	200	15.9	CFT-132RS3-S1	200	371
RA300-120-CFT	300	19	CFT-202RS3-S	300	250

*Please contact us for other items.

AFC3000

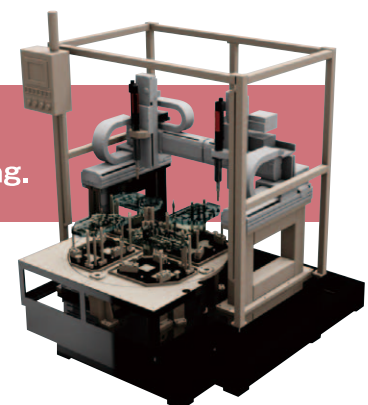
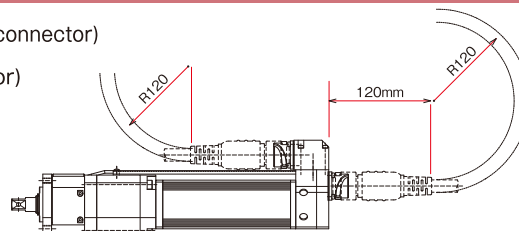
Tool Unit (Lower Direction Cable)

Minimum bending radius of tool cable is 120mm on operating.
Lower connector specification is also available for space saving.

CFT-201RS1-S (Standard upper connector)

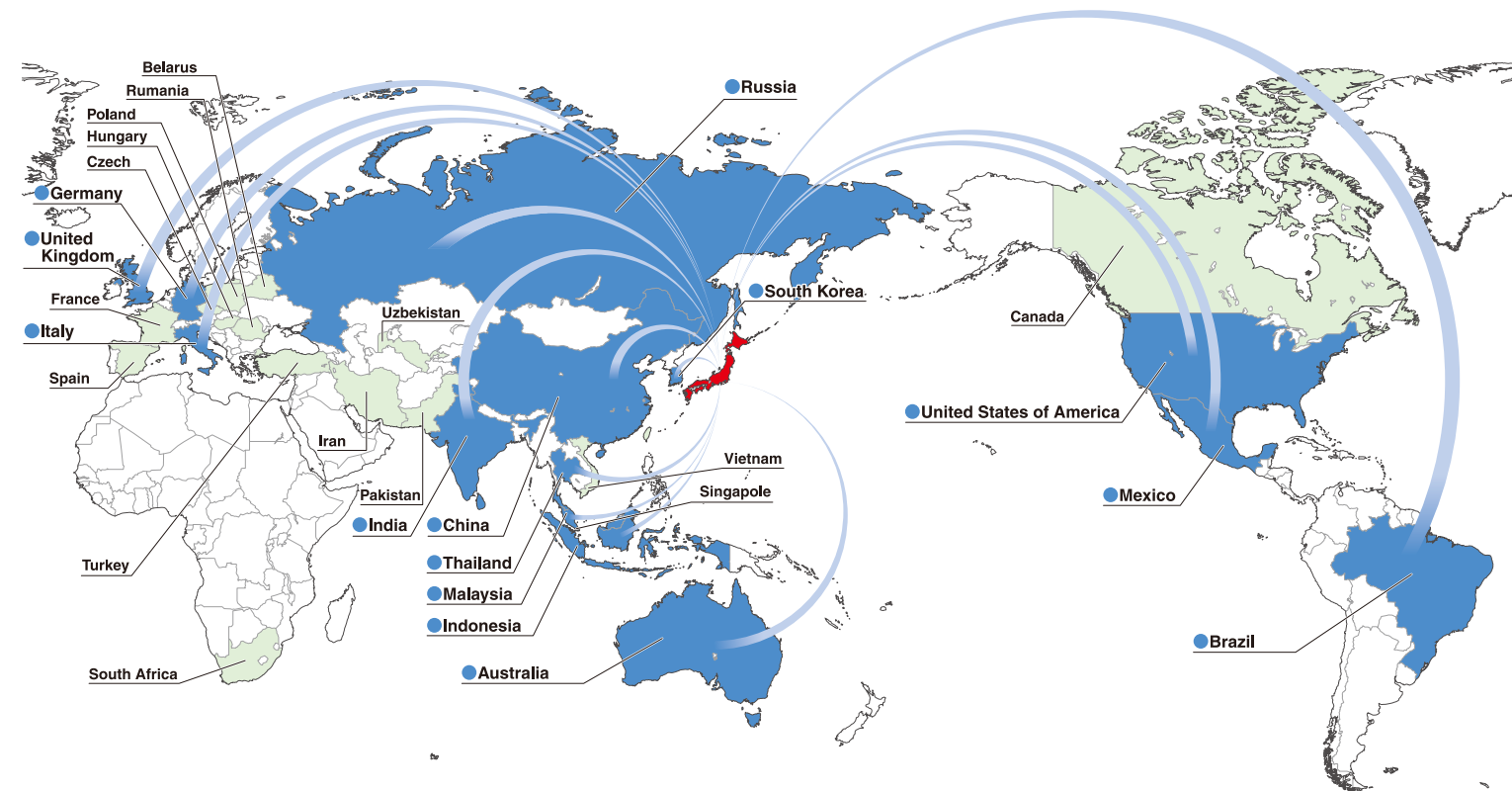
CFT-201RS1-SL (Lower connector)

*Details refer to the system configuration.



Suitable for mounting to robots etc!

Global Delivery Map



※ ■ Service Available
■ Delivery Record



ELECTRICAL ASSEMBLY TOOLS **DAI-ICHI DENTSU LTD.**

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JQA-QMA13393

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