



**Maximum control
over the tightening process**



Hi-tech DC tightening systems

- Brushless electric screwdrivers/nutrunners with direct control of the tightening torque/angle: from 0.1 to 5.6 Nm
- Power supply and control unit
- Connection Cables

Fiam[®]
PEOPLE AND SOLUTIONS



X-PAQ™

PRECISION | ACCURACY | QUALITY

: Tightening solutions

X-PAQ tightening solutions are perfect for high-quality assembly

Composed of brushless electric screwdrivers or nutrunners combined with power supply and control unit with a single cable, they ensuring reliability and accuracy in any industrial assembly process.

The high technology offered by the multiple configurations, for manual or machine use, ensures various levels of torque control and monitoring to meet any tightening need, even the most complex.

The X-PAQ solutions can be used in all industrial sectors from automotive to aeronautic, from domestic appliances to electromechanical, **always guaranteeing:**

- high flexibility in managing assembly processes
- easy integration into existing production lines
- traceability of all assembly job data
- lower costs thanks to a reduction in rejected parts



Screwdrivers/Nutrunner motors



Power supply and control unit



Connection cables

3 elements that help to obtain extremely reliable results for high-quality finished products

ns with direct angle/torque control

Whatever your assembly process, these **sophisticated brushless electric screwdrivers** will meet your every need in terms of tightening accuracy and precision.

Very light and silent, they tighten with perfect control over the tightening process, resulting in high finished product quality.

Moreover, as they do not require post-process checks, they reduce production times and costs compared to traditional assembly systems.

- **Built-in torque transducer and resolver:** ensure high resolution torque/angle parameter measurements
- **Indicator LED** to check the result of the tightening cycle directly on the tool.
 - OK (green)
 - NOK (red) : when the maximum value set for the parameter (torque or angle) has been exceeded
 - NOK (yellow): when the minimum value set for the parameter (torque or angle) has not been reached
- **Front lighting LEDs** illuminate the fixing point: very useful for assembling in narrow spaces
- Each system **can be programmed to perform various assembly operations** with different torque, speed, etc. parameters **so it can be used for several applications**
- The tool is **very light** and is provided with a **soft rubber grip** to ensure that it is comfortable to use while increasing the grip of the operator's hand.



Angle offset for SD2500 ...RP models

	Type of screwdriver		Grip and Starting system	Torque range				Idle speed fast/slow or unique	Reversibility	Weight		Dimensions (mm)	Accessories
	Model	Code		Type	Nm min.	Nm max.	in lb min.			in lb max.	kg		
Straight models 	SD2500-10PL	112618544		0,1÷1,1	1÷10	1700		0,46	1,00	240x28,5	⊕ F1/4"		
	SD2500-20PL	112618545		0,2÷2,3	2÷20	1100		0,46	1,00	240x28,5	⊕ F1/4"		
	SD2500-35PL	112618546		0,4÷3,9	3,5÷35	800		0,45	1,00	240x28,5	⊕ F1/4"		
	SD2500-50PL	112618547		0,6÷5,6	5÷50	500		0,49	1,10	246x28,5	⊕ F1/4"		
Angle models 	SD2500-10RP	112618548		0,1÷1,1	1÷10	1700		0,57	1,25	264x28,5	□ M1/4"		
	SD2500-20RP	112618549		0,2÷2,3	2÷20	1100		0,57	1,25	264x28,5	□ M1/4"		
	SD2500-35RP	112618550		0,4÷3,9	3,5÷35	800		0,57	1,25	264x28,5	□ M1/4"		
	SD2500-50RP	112618551		0,6÷5,6	5÷50	500		0,61	1,35	271x28,5	□ M1/4"		

Legend

Reversibility: The tightening direction can be set freely to clockwise or anticlockwise

Start lever and/or push-to-start

Lever start

• Accessory drive: male square drive (ISO 1174-1); female hexagonal drive 1/4", 6,35 mm (ISO 1173)

• The code number must be used when ordering.

Torque values are purely indicative and may be influenced by the softness of the type of joint, by the type and length of the screw, and by the type of accessory used. For any further details, please address to Fiam Technical Service.

Equipment issued as standard (supplied with the tool)

- Rubber grip (except for angle models)
- Suspension ring
- Use and maintenance manual

The CT2500 is an innovative instrument that combines the power supply (voltage, current, etc. parameters) and programming functions, with accurate control of each step of the assembly process

Through its colour screen, the CT2500:

- Allows immediate and practical **programming, directly on the touch screen**
- Fully **displays the tightening process**
- **Instantaneously controls** the tightening torque and angle, and indicates the outcome by colouring the whole display
- Has **32 pre-settable "tasks"** that can be recalled for perfect control of the tightening sequences
- **There are 8 programs available for each task**, within which it is possible to set the **3 different tightening strategies** available (torque control, torque control-angle monitoring, angle control-torque monitoring) and the other tightening cycle parameters (clockwise/counterclockwise - CW/CCW - rotation, minimum/maximum torque, speed reduction during tightening, time limit)
- **Counts screws:** among the tightening cycle control parameters, there is also the screw count, which can be used as an effective Poka Yoke system (For each screw, you can program the maximum number of repetitions for a NOK screw)
- **Controls the tightening sequence:** the unit controls the correct pre-set tightening sequence and determines the maximum number of NOK results for each screw
- **Exports the tightening result files** through the USB port, which can also be use to backup and import/export tasks, and save tightening graphs

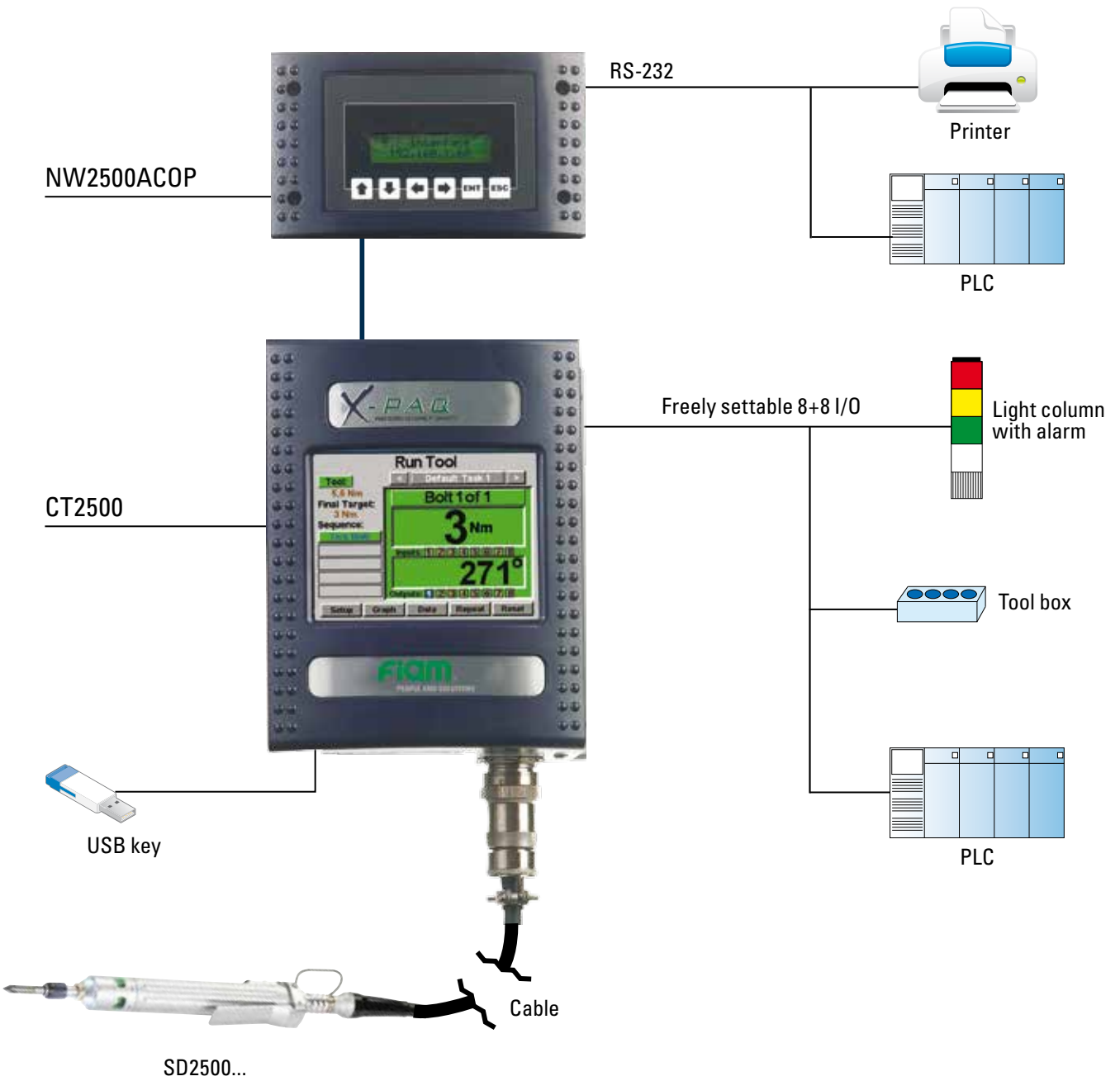


With a touch, all the operations you could want

- **Automatically recognises the tool** and its parameters: model, serial number, number of cycles executed, calibration value, etc. to aid any maintenance work
- Provides protection with **passwords for three users**
- **Regulates the lever sensitivity**, or the push sensitivity, to prevent false starts
- **Provides programmable I/O (input/output)** for process control and remote commands

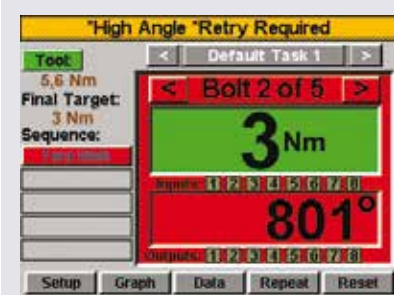
control unit CT2500

A world in communication



Straightforward and intuitive programming

The navigation menus are simple and intuitive. Just a few taps directly on the screen are enough to configure the tightening parameters, create the assembly strategies or display the diagnostics



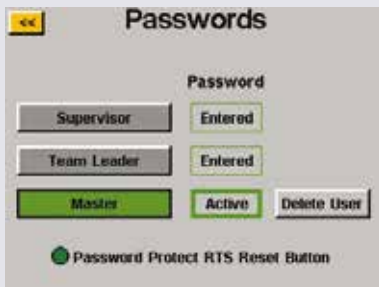
- Green display: tightening OK
- Red display: tightening NOK: when the maximum value set for the parameter (torque or angle) has been exceeded
- Yellow display: when the minimum value set for the parameter (torque or angle) has not been reached



Display of tightening parameters and strategies



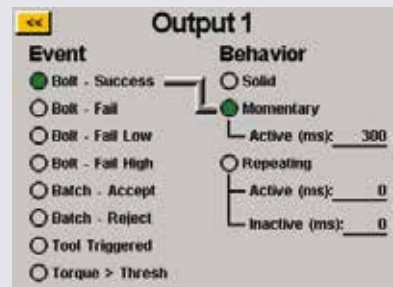
Screen for selecting the 32 tasks



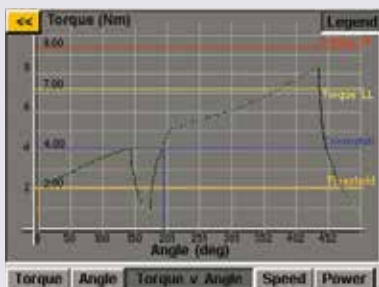
Three different programmable passwords



8+8 freely assignable I/O



Way of choosing the tightening result display (output signal)



Graph of the last tightening performed. The graphs can be exported even during the work cycle



The tasks can be downloaded, allowing fast and simple backup of the machine with a simple key press (Export Task Files)

Time	Job	Code	Target	Actual Torque	Angle	Speed	Power	Status
6/14/12								
8:02:28	2	181541	8.00 in-lb	0.00	8.01	6.01	1821	Good
8:02:21	2	181560	8.00 in-lb	0.00	8.03	6.03	4090	Good
8:02:08	2	181559	8.00 in-lb	0.00	7.98	7.98	8634	Good
8:01:48	3	181550	8.00 in-lb	0.00	7.98	7.98	865	Good
8:01:46	1	181557	8.00 in-lb	0.00	8.02	8.02	281	Good
8:01:01	1	181556	8.00 in-lb	0.00	8.03	8.03	361	Good
8:00:29	5	181525	8.00 in-lb	0.00	7.98	7.98	721	Good
8:00:17	4	181554	8.00 in-lb	0.00	8.03	8.03	279	Good
8:00:55	3	181553	8.00 in-lb	0.00	8.01	8.01	188	Good
8:00:53	2	181552	8.00 in-lb	0.00	8.01	8.01	209	Good
8:00:51	1	181551	8.00 in-lb	0.00	7.98	7.98	192	Good
8:00:49	5	181550	8.00 in-lb	0.00	7.98	7.98	211	Good
8:00:46	4	181549	8.00 in-lb	0.00	8.03	8.03	804	Good
8:00:42	3	181548	8.00 in-lb	0.00	8.01	8.01	267	Good
8:00:21	3	181547	8.00 in-lb	0.00	8.02	8.02	794	Good
8:00:17	2	181546	8.00 in-lb	0.00	7.98	7.98	293	Good
8:00:13	1	181545	8.00 in-lb	0.00	7.98	7.98	470	Good

Large internal memory. All the tightening operations can be downloaded. Display of the last 100 cycles performed

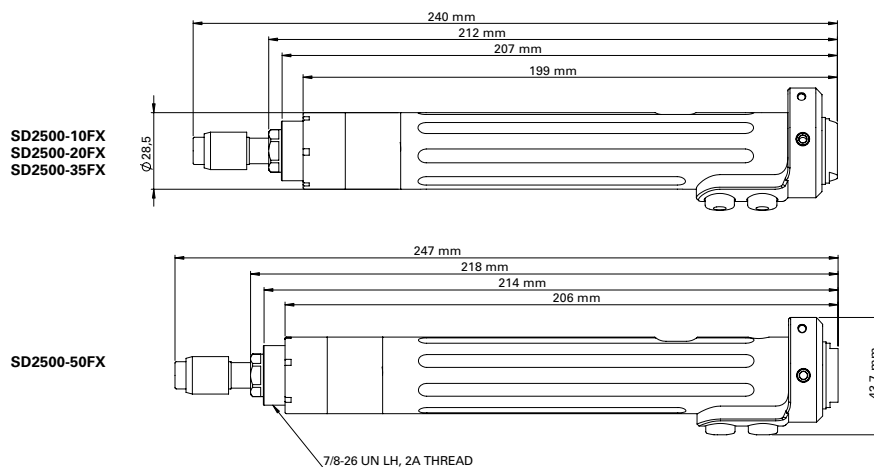
Model	Code	Dimensions mm	Weight kg	Voltage Supply
Power supply and control unit CT2500	686200341	216 x 178 x 137	4,1	100-240 V ac (50-60 Hz)

Standard equipment (supplied with the unit)

- Power supply cable
- Use and maintenance manual
- Rear support plate for mounting on structures

The X-PAQ solutions also provide for nutrunner motors to be installed on machines and used under remote control.

- **Brushless electric nutrunner motors** do not require maintenance and they ensure high efficiency during the work cycle and do not pollute the work area as there are no carbon dust residues
- **Built-in torque transducer and resolver:** ensure high resolution torque/angle parameter measurements
- The **choice of motor and its accurate programming** (angle, torque, time etc...), reduce post-process checks, greatly benefiting productivity
- **Compact design, reduced sizes and above all weights, make them** ideal for installation on single and multiple tightening units and robots with an operating range **from 0.1 to 5.6 Nm**
- When combined with the Fiam screw feeder, **great results can be obtained** in terms of **speed and productivity**



Nutrunner motors

Model	Code	Type	Torque range				Idle speed fast/slow or unique	Reversibility	Weight		Dimensions (mm)	Accessories
			Grip	min. Nm	max. Nm	min. in lb			max. in lb	rpm		
SD2500-10FX	112618552	↓↑	↓↑	0,1÷1,1	1÷10	1700	↻	0,46	1,00	240x28,5	⊕ F1/4"	
SD2500-20FX	112618553	↓↑	↓↑	0,2÷2,3	2÷20	1100	↻	0,46	1,00	240x28,5	⊕ F1/4"	
SD2500-35FX	112618554	↓↑	↓↑	0,4÷3,9	3,5÷35	800	↻	0,45	1,00	240x28,5	⊕ F1/4"	
SD2500-50FX	112618555	↓↑	↓↑	0,6÷5,6	5÷50	500	↻	0,49	1,10	246x28,5	⊕ F1/4"	

Accessories available upon request



- Single Flange AC2500-MPSF Code: 676010145



- Double Flange AC2500-MPDF Code: 676010146



- Double Flange with External Thread AC2500-MPJR Code: 676010147

- Accessory drive: female hexagonal drive 1/4", 6,35 mm (ISO 1173)
- The code number must be used when ordering.

Torque values are purely indicative and may be influenced by the softness of the type of joint, by the type and length of the screw, and by the type of accessory used. For any further details, please address to Fiam Technical Service.

Standard equipment (supplied with the tool)

- Use and maintenance manual
- Rubber sheath

Connection Cables

Only one cable is needed between the CT2500 power supply/control unit and the tool: a great benefit in terms of the space occupied in the work area.

These robust cables are extremely flexible and can withstand repeated stresses over time.

They have been designed and made to handle data transmission safely and are available in two different sizes as well as in an **ESD** (ElectroStatic Discharge) version to protect components from any electrostatic discharges during assembly.



Model	Code	For models	Length mt
CB2500 - 10HW	686200706	All	3
CB2500 - 10ESD	686200707	All	3
CB2500 - 25HW	686200708	All	7,6
CB2500 - 25ESD	686200709	All	7,6

Accessories available upon request



• BC Cartesian arms

These ensure that the tool is perfectly perpendicular to the workpiece and eliminate any reaction on the hand. Vertical stroke: 850 mm. Horizontal: 320 mm with 360° arm rotation in the horizontal axis. For more details, see catalogue no. 79, "Accessories for an ergonomic workplace".

Model	Code	Cartesian Arm					
		Max Torque	Max working radius (B)	Min. working radius (A)	Ø Max. tool	Max. load	Weight
BC12 Cartesian Arm	692031020	12	775	180	32-50	1	8,5



• NW2500-ACOP

Module to connect to the CT2500 unit to interface the system with printers, PLCs and PCs through the RS232 port. Allows the 32 programs available in the CT2500 unit to be recalled in sequence. There are 99 programs available per sequence

Model	Code	For models
NW2500-ACOP	686200401	CT2500
NW2500-EIP	upon request	CT2500

The NW2500-EIP protocol is available on request. It uses the Ethernet / IP connection to interface with systems such as PLCs and robots, allowing the results to be displayed.



• SPS FOR CT2500 CONTROLLER

Poka Yoke device for selecting the program based on the chosen accessory. Allows up to 8 different accessories to be selected among tool holders, sockets and bits. Discover its many functions in the specific Fiam catalogue no. 97.

Model	Code	For models
SPS FOR CT2500	687010054	CT2500



• AC2500-PG auxiliary grip

To convert straight screwdrivers into pistol screwdrivers. Code: 676010148



• AC2500-FG soft rubber grip

To increase the grip on the operator's hand (except for angle screwdrivers). Code: 676010150



• AC2500-SC suspension clip

For angle screwdrivers and/or straight screwdrivers converted to pistol (by means of the optional grip). Allows the tool to be kept parallel to the work surface. Code: 676010149