Tightening automation.
Only excellent solutions.

**EasyDriver** MCA: auto feed tightening module
- Screw feeding system
- Air or DC driven nutrunner motor
- Fastening slide
A concentrate of innovation for a faster productive process: this is the auto feed tightening module EasyDriver MCA. It is particularly suitable for large batch of equal screws and can be integrated into existing production systems (production lines, manipulators, electric axes, robots...). In order to obtain an independent automatic tightening system, it is sufficient to interface an external start (from PLC, pedal-key or start button).

**It offers concrete benefits in productivity because:**

- the screw is automatically sent from the bowl feeder to the screw head assembly
- the positioning and the tightening of the screw on the workpiece is automatic and accurate
- the PLC manages and controls the working cycle and it can be integrated into automated production systems (Industry 4.0).

Easydriver MCA guarantees constant performances, for each torque need, also when used in heavy duty conditions. A solution designed and manufactured entirely by Fiam for the industrial assembly. MCA: a concentrate of innovation.
MCA: auto feed tightening module

Effective production cycles, faster and safer

For all types of screws
metric, self-threading, self-tapping, self-drilling, three-lobe, with knurled washer under the head etc.

Easy integration
on any pre-existing productive system: single workstations, turntables, automatic pallet lines

Different torque control systems
are available and can be chosen depending on application and type of joint and fastener

Installation on axis
X, Y and Z to tighten at different working heights

Installation on robots
to be used in a wide range of applications (SCARA, ROBOT)

Torque accuracy given by:
air shut-off nutrunner motors or DC driven nutrunner motors (torque/angle or current control), suitable for systems networking (Industry 4.0)

For multiple tightenings
even with short centre distance
The right solution to improve productivity

Designed and manufactured entirely by Fiam, this solution is perfect when large and medium batches of screws have to be tightened, for integration on pre-existing productive systems and to optimize production process time.

MCA consists of:

**SCREW FEEDING SYSTEM**
It manages the working cycle and guarantees high feeding rate, as it is customized based on screw geometry and specific application.

**INTEGRATED PLC**
It manages all machine parameters depending on tightening needs. It can be integrated into automatic productive systems.

**AIR OR DC DRIVEN NUTRUNNER MOTOR**
Specifically designed and manufactured for industrial automation.
Extremely sturdy, Fiam nutrunner motors guarantee constant performances, for each torque need, also when used in heavy duty conditions.
Different torque control systems are available and can be chosen depending on application and type of joint and fastener.

**FASTENING SLIDE**
It ensures precise approaching stroke of the nutrunner motor - screw head to the component, guaranteeing a high reliability of the assembling product, since all screws are tightened correctly and precisely. Made of aluminium alloy, it is light and compact (only 40 mm in width) can be used on solutions with manipulators, electrical axis X, Y, Z, robots; it is suitable for strong axial thrusts (for example with self-drilling screws).
Overload sensor with photocell makes sure no screw gets stuck in the selection duct guaranteeing high and uninterrupted production.

The screw is shot inside a closed chamber which optimises screw speed and consequently the productive process optimizing the use of compressed air.

Embedded screw passage sensor controls also very small screws and it isn’t influenced by other sensors.

Comfortable and rational hose that includes the air and electric cables between slide and feeder.

Pneumatic cylinders equipped with built-in air decelerators.

Fastening slide available in three versions.

Air or DC driven nutrunner motor.

Structure in stainless steel to guarantee long lifetime.

Tightening mode selection - torque and depth control, or - depth control.

High frequency screw selector customized on specific screw sample, guaranteeing high selection reliability at tight cycle time.

External structure of small dimensions, which can be dismounted easily for maintenance.

Comfortable and rational hose.

Light LEDs to monitor the different phases of working cycle.

FANING
For screws L ≤ 35 mm

**SINGLE-STROKE FASTENING SLIDE**
- the only stroke is being performed by the motor.
- ideal for manipulators and anthropomorphic arms

**DUAL-STROKE FASTENING SLIDE**
- tightening stroke and head approaching stroke
- offset device for center distance up to 20 mm

- from 0.4 up to 40 Nm
- high performances
- models with air shut-off, with air shut-off and built-in torque transducer for monitoring the tightening cycle

**SL15 model**
- Distance to centre: 41 mm

**SL20 model**
- Distance to centre: 51 mm

**SL15 model**
- Distance to centre: 41 mm

**SL20 model**
- Distance to centre: 51 mm

**AIR NUTRUNNER MOTOR**
- 0.4 up to 40 Nm
- high performances
- models with air shut-off, with air shut-off and built-in torque transducer for monitoring the tightening cycle
For screws L > 35 mm

- equipped with an anti-overturing device to handle screws having a ratio total length/head diameter equal more or less to 1. This device prevents screws from over-turning and production stop.

- up to 50 Nm
- to control, monitor and systematically diagnose the assembly cycle, as well as data storing

- models with:
  - CURRENT CONTROL
  - TORQUE/ANGLE CONTROL

SL15 model
- Distance to centre: 41 mm

DISCOVER DETAILS OF ELECTRONICS CONFIGURATION ON PAGE 18
**SCREW FEEDER**

**For screws L (mm) 10 ≤ L ≤ 35**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air inlet</td>
<td>G 3/8 Female</td>
</tr>
<tr>
<td>Power features</td>
<td>230V/50 Hz - Optional: 230V/60 Hz e 120V/60 Hz</td>
</tr>
<tr>
<td>Maximum feed</td>
<td>60 screws/minute</td>
</tr>
<tr>
<td>Air consumption</td>
<td>max 16 l/s</td>
</tr>
<tr>
<td>Sound pressure level</td>
<td>&lt; 80 dBA</td>
</tr>
<tr>
<td>Diameter of the bowl</td>
<td>ø 240 mm</td>
</tr>
<tr>
<td>Capacity of the bowl</td>
<td>1 L = 1 dm³</td>
</tr>
<tr>
<td>Weight</td>
<td>36 kg</td>
</tr>
<tr>
<td>Connecting hose to the screwdriver</td>
<td>5 mt</td>
</tr>
<tr>
<td>Dimensions (mm):</td>
<td>L 450 x Largh 340 x h 400</td>
</tr>
<tr>
<td>Internal hose diameter</td>
<td>14 mm</td>
</tr>
<tr>
<td>Power (maximum consumption)</td>
<td>180 VA for air nutrunner motors</td>
</tr>
<tr>
<td></td>
<td>780 VA for DC driven nutrunner motors 15 MCB</td>
</tr>
<tr>
<td></td>
<td>2170 VA for DC driven nutrunner motors 25 MCB</td>
</tr>
<tr>
<td></td>
<td>780 VA for DC driven nutrunner motors X-PAQ</td>
</tr>
<tr>
<td>Pneumo-electric system</td>
<td>included</td>
</tr>
</tbody>
</table>

**For screws L (mm) 35 ≤ L ≤ 60**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air inlet</td>
<td>G 1/2 Female</td>
</tr>
<tr>
<td>Power features</td>
<td>230V/50 Hz - Optional: 230V/60 Hz e 120V/60 Hz</td>
</tr>
<tr>
<td>Maximum feed</td>
<td>60 screws/minute</td>
</tr>
<tr>
<td>Air consumption</td>
<td>max 16 l/s</td>
</tr>
<tr>
<td>Sound pressure level</td>
<td>&lt; 80 dBA</td>
</tr>
<tr>
<td>Diameter of the bowl</td>
<td>ø 420 mm</td>
</tr>
<tr>
<td>Capacity of the bowl</td>
<td>3 L = 3 dm³</td>
</tr>
<tr>
<td>Weight</td>
<td>105 kg</td>
</tr>
<tr>
<td>Connecting hose to the screwdriver</td>
<td>5 mt</td>
</tr>
<tr>
<td>Dimensions (mm):</td>
<td>L 800 x Largh 800 x h 500</td>
</tr>
<tr>
<td>Internal hose diameter</td>
<td>14 mm</td>
</tr>
<tr>
<td>Power (maximum consumption)</td>
<td>320 VA for air nutrunner motors</td>
</tr>
<tr>
<td></td>
<td>920 VA for DC driven nutrunner motors 15 MCB</td>
</tr>
<tr>
<td></td>
<td>2200 VA for DC driven nutrunner motors 25 MCB</td>
</tr>
<tr>
<td></td>
<td>920 VA for DC driven nutrunner motors X-PAQ</td>
</tr>
<tr>
<td>Pneumo-electric system</td>
<td>included</td>
</tr>
</tbody>
</table>
Fastening slides are entirely designed and manufactured by Fiam with high quality materials, guaranteeing very high reliability and long life time, also in presence of high production rates.

Fastening slides ensure a perfect approach stroke of the nutrunner motor - screw head to the assembling component. Suitable also for applications in presence of more tightening points with very close centre distances (min. 41 mm for SL15 models; min. 51 mm for SL 20 models).

For center distance from 20 to 41 mm offset devices are integrated. Compact dimensions and extremely low weight make fastening slides extremely versatile and employable on manipulators, electric X,Y axis and robots. They can be used with Fiam air and DC driven nutrunner motors.

Special models upon request allowing the integration of nutrunner motors of different sizes and being suitable for applications where high axial thrust is required (e.g. in assemblies with self-threading screws).

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Running on ball recirculating runners</td>
<td>with dovetail, size 18/20 mm</td>
</tr>
<tr>
<td>Magnetic cylinders</td>
<td>(cylinder bore Ø 20 mm, upon request Ø 25 mm)</td>
</tr>
<tr>
<td>Pneumatic decelerators</td>
<td>✓</td>
</tr>
<tr>
<td>Limit switch position sensors</td>
<td>✓</td>
</tr>
<tr>
<td>Air flow governors</td>
<td>✓</td>
</tr>
<tr>
<td>Max possible nutrunner motor diameter</td>
<td>42.5 mm</td>
</tr>
<tr>
<td>Fastening slides can be equipped with precision sensor (with the possibility to define the accuracy of reading range)</td>
<td>✓</td>
</tr>
<tr>
<td>Weight (slide only)</td>
<td>1.8 ÷ 2.2 Kg</td>
</tr>
</tbody>
</table>
FASTENING SLIDES

SINGLE-STROKE FASTENING SLIDE

SL 15 model

The only stroke is performed by the nutrunner motor in order to reach the tightening point and tighten. Considering compact dimensions and weight, single stroke fastening slides are particularly suitable in situations where the approach movement is made by a robot or a manipulator with controlled Z axis. Rail track size: 15 mm.

Recommended for:
- tightening torque up to 10 Nm
- air nutrunner motors with ø max 36 mm

The dimensional drawings are available in different formats on our Fiam reserved area (www.fiamgroup.com).
**SINGLE-STROKE FASTENING SLIDE**

**SL 20 model**

SL 20 single stroke fastening slides with different rail track size: 20 mm

Recommended for:
- tightening torque > 10 Nm
- air nutrunner motors with ø max 42,5 mm
- DC driven nutrunner motors

---

**Legend**

- SL 15
- D20
- 050
- 50
- 36
- AR

- Anti-overturing device
- Ø brackets in mm
- Approaching stroke in mm
- Tightening stroke in mm
- Cylinder in mm
- Dimension of rail in mm
- Fastening slide

---

**Back View: Fixing Holes**

The dimensional drawings are available in different formats on our Fiam reserved area (www.fiamgroup.com)
DUAL STROKE FASTENING SLIDES

SL 15 model

Tightening stroke and Z approaching stroke of the head to the component. In the description of the slide, the first number indicates the nutrunner motor stroke, while the second identifies the head Z approaching stroke (in mm). Rail track size: 15 mm.

Recommended for:
• tightening torque up to 10 Nm
• air nutrunner motors with Ø max 36 mm

The dimensional drawings are available in different formats on our Fiam reserved area (www.fiamgroup.com)

Legend
- SL 15 model
- D20 050 50 36 AR
- Anti-overturing device
- Ø brackets in mm
- Approaching stroke in mm
- Tightening stroke in mm
- Cylinder in mm
- Dimension of rail in mm
- Fastening slide

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>50-50</td>
<td>20</td>
<td>50</td>
<td>710</td>
<td>15</td>
<td>50-50</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>50-50</td>
<td>20</td>
<td>50</td>
<td>710</td>
<td>15</td>
<td>50-80</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>50-80</td>
<td>20</td>
<td>80</td>
<td>770</td>
<td>15</td>
<td>80-50</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>80-50</td>
<td>20</td>
<td>50</td>
<td>770</td>
<td>15</td>
<td>80-50</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>80-80</td>
<td>20</td>
<td>80</td>
<td>830</td>
<td>15</td>
<td>80-80</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>80-80</td>
<td>20</td>
<td>80</td>
<td>830</td>
<td>15</td>
<td>80-80</td>
<td>20</td>
</tr>
</tbody>
</table>

The dimensional drawings are available in different formats on our Fiam reserved area (www.fiamgroup.com)
DUAL STROKE FASTENING SLIDES

SL 20 model

SL 20 single stroke fastening slides with different rail track size: 20 mm.

Recommended for:
• tightening torque > 10 Nm
• air nutrunner motors with ø max 42,5 mm
• DC driven nutrunner motors

<table>
<thead>
<tr>
<th>SL 20D32 050-50 36</th>
<th>mm</th>
<th>mm</th>
<th>mm</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>50</td>
<td>50</td>
<td>32</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
<td>50</td>
<td>42,5</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>50</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>50</td>
<td>42,5</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
<td>80</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
<td>80</td>
<td>42,5</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>80</td>
<td>32</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>80</td>
<td>42,5</td>
<td>80</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SL 20D40 050-50 36</th>
<th>mm</th>
<th>mm</th>
<th>mm</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>50</td>
<td>50</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
<td>50</td>
<td>42,5</td>
<td>50</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>50</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>50</td>
<td>42,5</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
<td>80</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>50</td>
<td>80</td>
<td>42,5</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>80</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
<td>80</td>
<td>42,5</td>
<td>80</td>
</tr>
</tbody>
</table>

The dimensional drawings are available in different formats on our Fiam reserved area (www.fiamgroup.com)
DUAL STROKE FASTENING SLIDES WITH OFFSET DEVICE

SL 15 model

Tightening stroke and Z approaching stroke of the head to the component. Slide equipped with OFFSET device for short center distances.

Rail track size: 15 mm.

Recommended for:
- tightening torque up to 10 Nm
- air nutrunner motors with ø max 36 mm

Application example of 2 fastening slides with head OFFSET device, in order to fasten screws with short distance to centre.

* For A and C quotes, see the table on page 12

The dimensional drawings are available in different formats on our Fiam reserved area (www.fiamgroup.com)
These fastening slides, are equipped with an additional anti-overturning device which handles screws having a ratio total length/head diameter from 1,1 to 1,5 (\(1,1 < \frac{H}{D} < 1,5\)).

Rail track size: 15 mm.

Recommended for:
- tightening torque up to 10 Nm

| Dimensional drawings are available in different formats on our Fiam reserved area (www.fiamgroup.com) |

<table>
<thead>
<tr>
<th>Triple-stroke fastening slide</th>
<th>Diameter of rail</th>
<th>Approaching stroke</th>
<th>Tightening stroke</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL 15 D20 100-50 32 AR</td>
<td>15</td>
<td>100 - 50</td>
<td>20</td>
</tr>
<tr>
<td>SL 15 D20 100-50 36 AR</td>
<td>15</td>
<td>100 - 50</td>
<td>20</td>
</tr>
<tr>
<td>SL 15 D25 100-50 32 AR</td>
<td>15</td>
<td>100 - 50</td>
<td>25</td>
</tr>
<tr>
<td>SL 15 D25 100-50 36 AR</td>
<td>15</td>
<td>100 - 50</td>
<td>25</td>
</tr>
</tbody>
</table>

* Variable size depending on the application
The screw heads designed and manufactured entirely by Fiam, are the result of yearly achieved know-how being a fundamental element for reliable tightening. They hold the screw coming from the feeder and guide it correctly to allow the rundown of the screw to the component.

The advantages:
- an excellent screw hold
- perfect driving of the screw to the tightening point
- any depth can be reached
- thanks to customized design, heads can process various screws sizes also into embedded spots
- quick and easy assembly and disassembly

**SCREW HEADS WITH ANTI-OVERTURING DEVICE**

To avoid screw tumbling. For screws with ratio length / head diameter, between 1.1 (approx) and 1.5

**SCREW HEADS WITH HOSE**

To reach embedded tightening points or inside holes

**SCREW HEADS WITH FRICTION JAWS**

Holding and guiding the screw on the head and not on the stem: jaws don’t open allowing screw insertion into holes or in embedded spots

**SCREW HEADS WITH SUPPORT OR PROTECTIVE SPACER/SPECIAL MATERIALS**

To ease the positioning on the component. Special materials and geometries to avoid the component damaging

**FOR BIG SCREWS**

To tighten screws up to 45 mm length

**EVERY SCREW HAS ITS SIZE**

**TTV - P**

<table>
<thead>
<tr>
<th>Ø screw head (mm)</th>
<th>L Total length of the screw (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4,5 - 7,0</td>
<td>max 25</td>
</tr>
</tbody>
</table>

**TTV - G**

<table>
<thead>
<tr>
<th>Ø screw head (mm)</th>
<th>L Total length of the screw (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7,1 - 10,0</td>
<td>max 36</td>
</tr>
</tbody>
</table>

**TTV - M**

<table>
<thead>
<tr>
<th>Ø screw head (mm)</th>
<th>L Total length of the screw (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,1 - 13,5</td>
<td>max 35</td>
</tr>
</tbody>
</table>
Fiam nutrunner motors are the ideal solution for many applications in different production fields. They are accurate, reliable, compact and performing. Specifically designed and manufactured for industrial automation, they can be installed in automatic assembly lines, in turntables, on multi-spindle tightening units, on fastening slides, on anthropomorphic robots. Suitable for any type of joint. Extremely sturdy, they guarantee constant performances over time also when used in heavy duty conditions.

**AIR NUTRUNNER MOTORS WITH AIR SHUT-OFF**

Automatic and immediate air shut-off clutch, guarantees high torque repeatability and low mean shift, even when joint elasticity changes. Torque repeatability is guaranteed for hundreds of thousands of cycles. Ideal to assemble components manufactured with high quality materials (for example in assembly of car components).

They ensure high performance even at low air feed pressure.

There are two types of starting system: push to start or direct start from a remote control signal. The motors are equipped with built-in strain gauge torque transducer and they also can be supplied with built-in torque transducer to control tightening process, axial compensator, different speeds or customized body design and features.

For further information about Fiam nutrunner motors consult correspondent catalogue

- n. 90 Air nutrunner motors
DC DRIVEN NUTRUNNER MOTORS

MCB NUTRUNNER MOTORS

DC driven nutrunner motors (brushless) require low maintenance. Environment friendly thanks to the absence of coal dust residual. Latest generation, computerized control, can be used on different joint types (same model for different tightening torques). Ideal for controlling, monitoring and systematically checking up of the assembly process. They memorize tightening results (Industry 4.0) and ensure the maximum quality of the finished product.

Suitable for all industrial fields from motor vehicle to aerospace, from electric household appliances to electro-mechanical field.

These solutions guarantee:
- high resolution in the measurement of torque / angle parameters
- high flexibility of tightening process
- easy integration in the productive lines
- traceability of all tightening data
- costs reduction thanks to waste reduction
- post-process control reduction with great productive benefits

This wide range of high-tech DC driven nutrunner motors with current and torque/angle control, are connected with feed and control units for different levels of torque control and monitoring. To solve any tightening issues, even the most complex ones.

CURRENT CONTROL

The torque parameters are achieved by measuring the current absorbed by the brushless motor; the angle parameters are achieved by appropriate sensors.

TORQUE AND ANGLE CONTROL

Equipped with an electronic transducer to read the torque applied to the screw; while the angle is read directly by appropriate sensors.

For further information about Fiam nutrunner motors consult correspondent catalogue
- n. 71 MCB: high technology DC driven nutrunner motors
CONTROLLER AND FEED UNIT

The latest generation MCB brushless nutrunner motors can be connected to the feeding/control unit TCSB-E which, besides powering the motor, includes **programming functions and control of each stage of the tightening cycle through the following features**:

- **5 strategies**: it is possible to choose between screw drive engagement, torque, torque/angle, angle/torque, loosening. 5 programmable modalities, to guarantee reliability and working speed
- **Optical outcomes visualization** for an immediate understanding through OK, NOK, RUN leds
- **Wide connectivity**: 5 inputs and 5 outputs for connection to signal tower light or external devices; they control and assure working continuity. RS232 connection for programming, diagnostics and data collection
- **Software is supplied with standard equipment, for a simple and intuitive programming**, with clear and complete instructions to set and manage the tightening strategy. The software provides for:
  - **Simple, intuitive installation** on a PC with the standard equipment supplied (RS232 cable)
  - **System configuration** through the quick guide, document “step by step” to immediately start the system
  - **System calibration**: the motors connected to this unit are on display; it is enough to select the motor connected and all parameters are automatically set
- **OFF LINE programming**: it is possible to create, modify and save the tightening programs without connection to TCS-B E system
- **ON LINE programming**: management of tightening programs with PC directly connected to the unit; it is possible to upload and save the tightening data directly to the PC while the tightening program works
- **Torque/angle/speed adjustment**: easy change of the parameters through pre-set grid
- **Programs storage**: programs can be saved in txt format too, exported and printed
- **Data printout**: combined with ‘view/print’ function available for stored programs, allows printing through serial port of a string including main information about last performed rundown.

**DIAGNOSTIC CONTROLS**

- **A window displaying the number and type of errors detected** (temperature, feeding tension, diagnostic test, check of motor sensors, resolver, transducer and system). Effective way to control system inputs and outputs connected to PLC
- **Possibility to execute the following diagnostic checks**: motor rotation check, analogical measurement of the power tension, control of the motor feedback signals.
In alternative to the single unit, you can be chose to feed and to check the nutrunner motors MCB with two separate unities.

**DRIVER**

TOD (Tightening Operation Driver): to **feed the motor** and supply correct feed parameters (voltage, current, etc...) following data pre-set in the control unit. Equipped with a control system for tension, voltage and temperature values, dispersion towards ground and interruption of ground wire. Any possible failure is displayed by means of luminous diodes and the system stops immediately.

**CONTROL UNIT**

TOC (Tightening Operations Controller): detects both OK and NOT OK cycles besides the torque/time values which can be easily stored (7,000 tightening for each channel). Statistics (CP, CPK, Range, Average, Sigma). Sets various tightening strategies (torque, torque/angle, angle/torque, screw feeding function). With graphic display for the visualization of the torque / time curve.
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.

- Very light and silent, they tighten with perfect control over the tightening process, resulting in high finished product quality.
- 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.
- 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.
- 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.
- Each system can be programmed to perform various assembly operations with different torque, speed, etc. parameters so it can be used for several applications.

For further information about Fiam nutrunner motors consult correspondent catalogue
- nr. 104 - Brushless electric nutrunners with direct control of the tightening torque/angle

<table>
<thead>
<tr>
<th>Model</th>
<th>Length</th>
<th>Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD2500-10FX</td>
<td>212 mm</td>
<td>247 mm</td>
</tr>
<tr>
<td>SD2500-20FX</td>
<td>214 mm</td>
<td>258 mm</td>
</tr>
<tr>
<td>SD2500-50FX</td>
<td>235 mm</td>
<td>43.7 mm</td>
</tr>
<tr>
<td>SD2500-35FX</td>
<td>212 mm</td>
<td>240 mm</td>
</tr>
<tr>
<td>SD2500-50FX</td>
<td>218 mm</td>
<td>247 mm</td>
</tr>
</tbody>
</table>

For further information about Fiam nutrunner motors consult correspondent catalogue
- nr. 104 - Brushless electric nutrunners with direct control of the tightening torque/angle
X-PAQ DC drive nutrunner motors are paired with the CT2500 A which, besides powering the screwdriver, performs programming functions, with accurate control of each step of the assembly process through the following features:

- 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
- 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)
- 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 used to backup and import/export tasks, and save tightening graphs
- Automatically recognises the motor 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
- Provides programmable I/O (input/output) for process control and remote commands
- The unit is equipped with an INTERFACE DEVICE designed to communicate with the screw feeder and the exterior (eg with the client PLC Master) through numerous I/O signals. LEDs also allow an immediate diagnostics of programmed outputs.

- Provides protection with passwords for three users
The data given in the table are indicative and can be changed without prior notice. The 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, by the pressure and quantity of air supply, and by the type of accessory used. The values indicated for noise and vibration levels were obtained in the laboratory, performing tests that comply with the standards stated, but alone are not sufficient for calculating risks. Values measured in the single work places may be higher than those stated. The values of actual exposure and consequent risks are specific and depend on the operator’s method of work, the type of work piece and the work place, as well as the operator’s time of exposure and his physical conditions. Fiam cannot be held responsible for any consequences deriving from the use of the information in the table when evaluating risks in the work place over which Fiam has no control. For all further details, please apply to the Fiam Technical Consultancy Service.

### Type of nutrunner motor

<table>
<thead>
<tr>
<th>Model</th>
<th>Nm</th>
<th>rpm</th>
<th>Version</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air shut-off</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20MC...A</td>
<td>0.4-5</td>
<td>650-2700</td>
<td>SL15</td>
<td>Single/Dual/Triple</td>
</tr>
<tr>
<td>MCSE...A</td>
<td>2.5-10</td>
<td>5000-1500</td>
<td>SL15</td>
<td>Single/Dual/Triple</td>
</tr>
<tr>
<td>MCY...A</td>
<td>7÷24</td>
<td>550-800</td>
<td>SL20</td>
<td>Single/Dual</td>
</tr>
<tr>
<td>Electric with current control**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15MCB...C1</td>
<td>1÷20</td>
<td>350-1700</td>
<td>SL20</td>
<td>Single/Dual</td>
</tr>
<tr>
<td>25MCB...C1</td>
<td>4÷50</td>
<td>500-1500</td>
<td>SL20</td>
<td>Single/Dual</td>
</tr>
<tr>
<td>Electric with torque/angle control**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15MCB...A1</td>
<td>0.5÷20</td>
<td>350-1700</td>
<td>SL20</td>
<td>Single/Dual</td>
</tr>
<tr>
<td>25MCB...A1</td>
<td>2÷50</td>
<td>500-1500</td>
<td>SL20</td>
<td>Single/Dual</td>
</tr>
<tr>
<td>SD2500...FX</td>
<td>0.1÷5.6</td>
<td>500-1700</td>
<td>SL15</td>
<td>Single/Dual/Triple</td>
</tr>
</tbody>
</table>

* Indirect DC driven nutrunner motor (current control)
** Direct DC driven nutrunner motor (torque/angle control)

### Standard equipment (supplied with the system)

- **Air nutrunner motors:**
  - Clutch adjustment key
  - Supplementary clutch spring
- **DC driven nutrunner motors equipped:**
  - Feed unit
  - Control unit
  - Kit of cables
  - Test certificate
- **Fastening slide:**
  - Complete with pneumatic fittings and supporting bracket
  - Embedded screw passage sensor
  - Screw head complete with bush customized depending on screw
  - Screw feed hose
  - Use and maintenance manual
  - Eco-friendly packaging (weight kg 3) - Dimensions mm: L 600 x 450 x h 520

### Accessories and models available upon request

- **Feeding hopper with 10 litre of capacity**
  - Feeding hopper with 10 litre of capacity; to connect to the screw feeder, it allows a great autonomy of screw feeding
  - For electric solution: test/checking service of assembly system directly at the client’s production lines
  - Customized support column
  - “Level” sensor for bowl feeder
  - Wooden case for shipment: code 683050046 (kg. 11 of case weight)
  - Dimensions mm: L 650 x 500 x h 715

- **FASTENING SLIDE:**
  - Models with different approaching strokes
  - Models with analogic sensor for depth precision control
  - Fastening slides with protection in transparent polycarbonate for internal view and greater safety for operator
  - Special fastening slide for tightening points with a very close distance to centre (20-41 mm)
- **Models with left rotation air motors**
- **Models with air motors for higher torque** range than given above
- **Models with special air motors with different speed and material** (eg. stainless steel...)
- **Models with air motors without clutch** (stall type) or with slip clutch

---

Feeding hopper with 10 litre of capacity

Fastening slide with reduced axial size: 420 mm in idle position and 360 mm in work.
REQUEST A FREE QUOTATION!

To choose an auto feed tightening module EasyDriver MCA we have to consider:

- **Material to tighten** (plastic, wood, steel, etc.)
- **Dimensions and encumbrance** of component to assemble
- **Tightening torque and speed** but the most important is the **screw**.

By sending us the features through the form you can directly compile on our website, you will receive a quick and no obligation, “turnkey” solution that will save you time and money!


**Discover how it works!**

See our solutions on YouTube by clicking on the link within our website [www.fiamgroup.com](http://www.fiamgroup.com)