Tightening automation.
Only excellent solutions.

EasyDriver: automatic screw feeding system
Automatic screw feeding systems
Our focus on your production cycle

The time needed for tightening becomes more and more essential for increasing productivity: tightening solutions with automatic screw feeding are the correct answer for setting up workstations which strongly increase productivity, allowing a return on the investment in just a short time.

This is why:

- **THE MANUAL PHASES** involving picking up the screw and positioning it correctly on the workpiece **ARE ELIMINATED**

- They guarantee a continuous supply of [SCREWS WHICH ARE «SHOT» AUTOMATICALLY] from the feeder

- **THEY REDUCE THE TIGHTENING CYCLE TIMES (–35%)** (see example on the next page)

- They facilitate a recovery of efficiency and **INCREASED PRODUCTIVITY**

- **THEY GUARANTEE REDUCED OPERATOR FATIGUE** because they are easy to use and perfectly ergonomic

<table>
<thead>
<tr>
<th></th>
<th><strong>EXAMPLE OF ASSEMBLY WITH SCREWDRIVER</strong></th>
<th><strong>EXAMPLE OF ASSEMBLY WITH SCREWDRIVER</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>MANUAL</strong></td>
<td><strong>AUTOMATIC</strong></td>
</tr>
<tr>
<td><strong>TOTAL TIME</strong></td>
<td>5s</td>
<td>11s</td>
</tr>
<tr>
<td><strong>PIECE LOADING</strong></td>
<td>1,5s</td>
<td>1,5s</td>
</tr>
<tr>
<td><strong>SCREW PICK-UP</strong></td>
<td></td>
<td><strong>TIGHTENING</strong></td>
</tr>
<tr>
<td><strong>SCREW POSITIONING</strong></td>
<td></td>
<td>2s</td>
</tr>
<tr>
<td><strong>TIGHTENING</strong></td>
<td></td>
<td>3,5s</td>
</tr>
<tr>
<td><strong>TOTAL TIME</strong></td>
<td></td>
<td>8,5s</td>
</tr>
<tr>
<td><strong>PIECE UNLOADING</strong></td>
<td></td>
<td><strong>TOTAL TIME</strong></td>
</tr>
<tr>
<td></td>
<td>1,5s</td>
<td>17s</td>
</tr>
</tbody>
</table>

**TIME SAVED:**

6 seconds

– 35%
With regard to the **return on investment**, here below we describe the example of one of our customers and how the tightening system with automatic screw feeding has modified their production times with tangible benefits.

<table>
<thead>
<tr>
<th>PHASE</th>
<th>HOW IT WAS OPERATOR TIME (seconds)</th>
<th>HOW IT IS NOW OPERATOR TIME (seconds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Component pick-up</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2 Right insert pick-up</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>3 Right insert placement</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>4 Screw 1 pick-up</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>5 Screw positioning on screwdriver</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>6 Component/screwdriver approach</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7 Tightening screw 1 on insert</td>
<td>0,2</td>
<td>0,2</td>
</tr>
<tr>
<td>8 Screw 2 pick-up</td>
<td>0,8</td>
<td>0,8</td>
</tr>
<tr>
<td>9 Screw positioning on screwdriver</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>10 Component/screwdriver approach</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11 Tightening screw 2 on insert</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>12 Left insert pick-up</td>
<td>1,5</td>
<td>1,5</td>
</tr>
<tr>
<td>13 Left insert placement</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>14 Screw 3 pick-up</td>
<td>1</td>
<td>X</td>
</tr>
<tr>
<td>15 Screw positioning on screwdriver</td>
<td>0,5</td>
<td>X</td>
</tr>
<tr>
<td>16 Component/screwdriver approach</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>17 Tightening screw 3 on insert</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>18 Screw 4 pick-up</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>19 Screw positioning on screwdriver</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>20 Component/screwdriver approach</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>21 Tightening screw 4 on insert</td>
<td>0,5</td>
<td>0,5</td>
</tr>
<tr>
<td>22 Component placement on bench</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**TOTAL 15s**

**TOTAL 10,20s**

-32% **TOTAL 10,20s**

(4,80 seconds/piece)

With a production of 2,000 pieces per day, the payback in this case is only 98 days: a **return on the investment in a very short time!**
**EasyDriver, the right solution to improve the productivity**

A concentrate of innovation for a faster productive process: this is the tightening system EasyDriver.

It is particularly suitable for large and medium batch of equal screws; it offers important benefits to improve the productivity: the screw is automatically sent from the bowl to the screwdriver head and it is possible to start tightening immediately.

Evident reduction of the tightening cycle times, saving almost 35%: the manual phases are eliminated; they considerably reduce the rhythm of the assembly process.

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**Technical features**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air connection</td>
<td>G 3/8 Female</td>
</tr>
<tr>
<td>Power features</td>
<td>230V/50Hz - Optional: 230V/60 Hz and 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>Noise 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 screwd riv</td>
<td>5 m</td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>L 450 x Width 340 x h 400</td>
</tr>
<tr>
<td>Internal hose diameter</td>
<td>14 mm</td>
</tr>
<tr>
<td>Power</td>
<td>180 VA for air screwdrivers</td>
</tr>
<tr>
<td></td>
<td>780 VA for electronic screwdrivers</td>
</tr>
<tr>
<td>Connecting hose to the screwd riv</td>
<td>5 m</td>
</tr>
</tbody>
</table>

Circular feeders with higher bowl capacity available on request: see pag. 24, Models available upon request.

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**PLC integrated into the feeder to adjust all machine parameters**

This innovative solution customizes the efficiency of the system with great flexibility, depending on the assembly needs. It is possible to make several adjustments: bowl vibrating time, screw shooting time, parameters of optical sensor, min. tightening time to prevent false start, screw shooting delay time, visible screw advance.

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**High working autonomy**

The vibrating bowl guarantees high working autonomy (1 or 3 litres on request) and the vibrator timed system, managed by the PLC, automatically stops screw feeding when not needed thereby reducing the consumption of electricity.

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**Immediate monitoring**

Thanks to light leds to monitor the different phases of working cycle.

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**External keypad for immediate adjustments**

To adjust the machine parameters, to monitor and change the production cycle. In an ergonomic position: the operator can make adjustments without opening the machine.
No jamming
The ‘overload’ photocell makes sure no screws get jammed in the selection duct by emitting a jet of air to eliminate excess screws. For high and constant system productivity.

Fast screw shooting
The screw is shot inside a closed chamber which optimises the productive process.

Soundproofed and everything visible
The transparent cover is big and soundproof for a better view of the inside without having to open the machine.

Pressure under control
Filter, regulator and lubricator group with air pressure gauge, filters the inlet air and maintains constant the machine feed guaranteeing suitable tool lubrication.

Removable structure
In stainless steel and long lasting, it can easily be dismantled for maintenance. Designed to ensure all maintenance operations easy, safe and reliable in compliance with Directive 42/2006/EC.

High frequency selector
It increases speed and productivity; able to feed up to 60 screws per minute.

Internal structure in stainless steel
To guarantee long lifetime.
A variety of use configurations

- Poka-Yoke system
- Warning at the end of cycle and in case of error
- Screws count (up to 99), program end signal
- View nr. of program, nr. of screws to be tightened, nr. of set sequence, nr. of screws tightened on the total
- Discriminate the untightenings

For screws $L \leq 35 \text{ mm}$
A variety of use configurations:

- Metric
- Self-threading
- Self-drilling
- Three-lobe
- With knurled washer under the head
- With double thread
...
The patented forward bit stroke, designed and manufactured by Fiam, is available for all air, electric and electronic screwdrivers. It provides automatic bit ejection reducing operator fatigue, keeps the screw visible and prevents it from going back. In addition, during the tightening phase, the head of the screwdriver does not touch the surfaces of the component, thereby avoiding any friction.

Consequently, the forward bit stroke device is suitable for tightening without effort where space is limited, such as close to sidewalls, or inside small diameter holes or holes that are very deep.

The forward bit stroke device can be supplied in a variety of versions with different bit strokes to be chosen according to the tightening needs (see the chart at the side).

The auto feed screwdrivers equipped with this device have a start lever: with a click the tightening starts, with a double click the screw is shot.

Ejection of the bit from the head (part C) can be different depending on the type of forward bit stroke device and on the dimensions of the head used (measurements are indicative and may differ depending on the application and the screw used).

**C = BIT EJECTION**

<table>
<thead>
<tr>
<th>TYPE OF FORWARD BIT STROKE DEVICE</th>
<th>HEAD TTV-P</th>
<th>HEAD TTV-G</th>
<th>HEAD TTV-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>WITH STANDARD STROKE</td>
<td>21</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>WITH MEDIUM STROKE</td>
<td>46</td>
<td>43</td>
<td>40</td>
</tr>
<tr>
<td>WITH LONG STROKE</td>
<td>21</td>
<td>18</td>
<td>15</td>
</tr>
</tbody>
</table>

**The advantages**

- SCREW LOADING: automatic screw feed
- TOOL READY: the tool always leaves the screw visible
- WITH SCREW VISIBLE: tightening starts, positioning is easier because the screw is visible
- TIGHTENING: press the lever, the bit tightens, the screwdriver head moves away and never touches the surface
The patented forward bit stroke device

**Components are not damaged**
Screw tip is in sight and the bit forward stroke automatically retracts screwdriver’s nozzle thus, parts surface is left untouched (varnished surfaces, electronic cards)

**Fastening process is speeded up**
Screw tip is visible to the operator therefore easing centering on screw hole, streamlining process time and safety.

**No jamming**
Bit ejection is synchronized with the screw being shot, by the cycle managed by PLC, to prevent any jamming and ensure continuous work cycles.

**Long bit stroke**
Allows reaching tightening points with difficult access (such as close to sidewalls) or narrow recesses.

**High bit contrasting force**
With over 30 kg of thrust, this ensures reliable tightening on all types of joint and makes it possible to work without the bit moving back, also with self-drilling screws for example.

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END OF TIGHTENING: the screw is tightened
Choose the telescopic device, for working in depth

When it is necessary to reach tightening points close to sidewalls, in limited or very deep spaces, the ideal choice is the **telescopic device designed to be used with Fiam air screwdrivers**.

The device makes it possible to reach the required depths and therefore to tighten inside holes. Screwdrivers with an internal telescopic stroke of 75 mm and 105 mm are available.

The internal mechanics of the device feature a **built-in screw shooting sensor** by monitoring the head stroke, **avoids shooting a new screw until the current tightening cycle has been completed**: a great advantage for operator productivity because it prevents screw jams.

The device provides screwdrivers with a lever or push button starting system, depending on the working needs.

**Model T with a sensor**

1. **SCREW LOADING**: automatic screw feed
2. **TOOL CONTACT**: the jaws of the screwdriver touch the surface
3. **TIGHTENING**: Push start system, the bit goes down and tightens
4. **END OF TIGHTENING**: The screw is tightened, the jaws always remain in contact with the surface
Double advantage of the model with 2 sensors that can work with torque control or height control

The telescopic device can be equipped with two sensors. In addition to the first one that prevents a new screw from being shot out, this second sensor can be activated or disabled directly on the screw feeder using the selector provided and allows the tightening height to be controlled.

In this case, the motor is not stopped by the automatic and instantaneous torque control system, but by the sensor that cuts off the power to the motor when the tightening height is reached. The sensor must be adjusted to the tightening height to advance or retard the motor cut out.
Extremely reliable and accurate screwdrivers

In addition to the high productivity provided by automatic screw feeding, these latest generation air screwdrivers guarantee accurate, reliable and constant tightening, cycle by cycle in every production field.

Designed and manufactured by Fiam, they are equipped with innovative high output motors and with an automatic and immediate torque control system that maintains the same torque values for hundreds of thousands of cycles.

With low weight by virtue of the light alloy construction materials, they are equipped with an attachment for a suspension (balancers) and set up for the removal of exhaust air.

There are two models of Fiam auto feed air screwdrivers: with the FORWARD BIT STROKE or with the TELESCOPIC device.

Discover the features on pages 8 and 10.
Also available with a rotating piston device on request: see pag. 25 models available on request).
Tightening that is always reliable: high torque repeatability is guaranteed on both soft and hard joints thanks to the automatic and instantaneous torque control system.

Quick and easy clutch adjustment: through an access slot protected by a band spring.

Maximum ergonomics: the modern torque control system reduces the reaction to the operator’s hand. Thanks to careful study of the internal gears, the vibration levels are below 2.5 m/s².

Easy and functional starting system: For models with forward bit stroke device, one click of the lever starts the tightening process and with a double click the screw is shot. Its operation is managed by the PLC located in the screw feeder and therefore, besides being reliable, it can be programmed and customised (for example to delay the screw shooting). The telescopic models have a push-start system.

Efficient grips: these ensure the screwdriver is in line with the component to be tightened. The grip position, close to the tightening point, helps the operator in centering the component to be tightened.

The screw is shot inside a closed chamber which optimises screw speed considerably: there is no longer any dissipation of compressed air.

Also with pistol grip: for vertical tightening points.

FORWARD BIT STROKE
Tightening and monitoring with TOM: the intelligent simplicity

Fiam auto feed air screwdrivers can be combined with tightening monitoring systems such as TOM (Tightening Operation Monitor): a “Poka Yoke” system, entirely designed and manufactured by Fiam. It verifies in real-time the tightening process status, it guarantees reliability regardless of operator influence and allows skipping the post process quality check. It is an innovative, practical and inexpensive Poka Yoke system (anti-error): at the end of the tightening sequence, the operator is warned about the outcome thus can quickly move to the next assembly job.

Easy to use: through a SINGLE PROGRAM or a SEQUENCE of PROGRAMS (up to 8) with 99 screws each. The programs can be selected also from external PLC through the available I/O signals.

Production shifts efficiency and efficacy under control: thanks to the statistics, it is possible to check the efficiency of production at the end of each shift.

**TOWER-LIGHT** (optional)
In addition to OK, CYCLE END, NOK, also other functions can be connected e.g. program end, untightening, screwdriver stop.

**NUMBER OF SCREWS TO BE TIGHTENDED**

3, 2, 1
LARGE DISPLAY
- nr. of program in use
- nr. of set sequence
- nr. of screws to be tightened
- nr. of screws tightened on the total

ACOUSTIC SIGNALS
= Screw OK
= Program end
= Error
= Sequence end

5 LANGUAGES
The language can be selected at any stage of programming
- Italian
- French
- English
- Spanish
- Deutsch

Printing of each tightening outcomes:
connected to a printer, it allows to have a written report of all tightenings performed

A reliable and quick check which allows moving smoothly to the next process steps without additional post process verification

Equipped with I/O signals to interface with PLC Master PLC or other external units
Maximum accuracy, minimum maintenance

They are suitable for specific assembly work with small and very small screws and are therefore used in the following sectors: electronic and electromechanical components, toys, plastic objects and everywhere high accuracy is required also at low torque values.

These screwdrivers have a control system with automatic motor shut off that cuts off the power supply to the tool upon reaching the established tightening value. Production efficiency is facilitated by the possibility of adjusting the slow start (screw feeding speed) from 30% to 100% of nominal speed, in addition to the possibility of selecting two working speeds: slow and fast.

Equipped with innovative brushless motors that, thanks to the absence of carbon dust in the working area, guarantee long lifetime, no pollution in the working environment and higher tool productivity.

Fiam auto feed electric screwdrivers are available with the FORWARD BIT STROKE: device: discover all features on pag. 8.

No maintenance: brushless electric motors

Maximum safety of use due to low voltage operation and perfect thermal insulation

Easy and functional starting system. For models with forward bit stroke device, one click of the lever starts the tightening process and with a double click the screw is shot. Its operation is managed by the PLC located in the screw feeder and therefore, besides being reliable, it can be programmed and customised (for example to delay the screw shooting).

The screw is shot inside a closed chamber which optimises screw speed considerably: there is no longer any dissipation of compressed air.
Great accuracy even at low torques thanks to the automatic power shut-off

Low noise level and safe: the absence of electrical power devices on the head of the tool avoids any danger of electric shock

Easy and fast clutch adjustment to increase or decrease the tightening torque through milled rig nut

Efficient grips: these ensure the screwdriver is in line with the component to be tightened. The grip position, close to the tightening point, helps the operator in centering the component to be tightened

Also with pistol grip: for vertical tightening points

FORWARD BIT STROKE
For a simply perfect production process

They can be integrated perfectly with the network control systems of the production site. They make it possible to control, monitor, analyse, diagnose and programme in real-time production processes in every industrial field and consequently guarantee the quality of the assembled products. These innovative auto feed electronic screwdrivers have extremely advanced features; it can perform different assemblies at different torque and therefore it can be suitable for different applications, thus providing a considerable advantage in terms of investment costs.

Fiam auto feed electronic screwdrivers are available with the FORWARD BIT STROKE device: discover all features on pag. 8.

There are two types of auto feed electronic screwdrivers: with direct control (torque/angle control) or with indirect control (current control). They are always connected to modern feed and control units that integrate the screwdriver’s feed features (power, current...) as well as the programming and control features of every assembly process.

**SCREWDRIVERS WITH DIRECT CONTROL**

(torque/angle control) have a transducer and an encoder which effect the control of the torque and angle with DIRECT modality; this ensures high resolution in the measurement of torque and angle values guaranteeing an excellent tightening process control.

No need for post-process controls: compared to standard assembly systems, the computerised electronic solutions reduce the time taken and consequently production costs.

**SCREWDRIVERS WITH INDIRECT CONTROL**

(current control): the parameters are achieved by measuring the current absorbed by the brushless motor and by appropriate sensors.

The screw is shot inside a closed chamber which optimises screw speed considerably: there is no longer any dissipation of compressed air.

**Easy and functional starting system.** For models with forward bit stroke device, one click of the lever starts the tightening process and with a double click the screw is shot. Its operation is managed by the PLC located in the screw feeder and therefore, besides being reliable, it can be programmed and customised (for example to delay the screw shooting).

**Efficient grips:** these ensure the screwdriver is in line with the component to be tightened. The grip position, close to the tightening point, helps the operator in centering the component to be tightened. Pistol grip versions also available (with push-start or push button).

**No maintenance:** brushless electric motors.

**Versatile and advantageous investment:** the system can be adjusted to perform different assemblies at different torque and therefore it can be suitable for different applications, thus providing a considerable advantage in terms of investment costs.

**Same screw on different joints**

To tighten the same screw on different joints, it’s enough to set the programs: a considerable advantage of time spare.

Auto feed Electronic Screwdrivers
AUTO FEED ELECTRONIC SCREWDRIVERS WITH DIRECT/INDIRECT CONTROL

The latest generation brushless screwdrivers can work with direct or indirect control of torque and angle. Connected to the feeding/control unit TCSB-E which, besides powering the screwdriver, 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 screwdrivers connected to this unit are on display; it is enough to select the screwdriver 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.

All solutions can be equipped with a Multifunction Panel for selecting of programs (4 or 8 depending on which TCS-B...E model it is paired with):

- managing tightening/untightening operations
- connecting connectors (pallet lock/release / led signal tower / Socket Program Selector/Enable/On Off).

The panel is equipped with 3 LED indicator which report OK NOK RUN, 2 memory statuses and 2 LEDs reporting output status.
Auto feed electronic screwdrivers with direct control of torque and angle

These auto feed screwdrivers integrate sophisticated brushless electronic nutrunner motors X-PAQ which will meet any of your needs in terms of tightening accuracy and precision.

Equipped with:
- **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.

They are very light, silent and ensure a comfortable use for the operator.

The screw is shot inside a closed chamber which optimises screw speed considerably: there is no longer any dissipation of compressed air.

**Easy and functional starting system.** For models with forward bit stroke device, one click of the lever starts the tightening process and with a double click the screw is shot. Its operation is managed by the PLC located in the screw feeder and therefore, besides being reliable, it can be programmed and customised (for example to delay the screw shooting).

**Efficient grips**: these ensure the screwdriver is in line with the component to be tightened. The grip position, close to the tightening point, helps the operator in centering the component to be tightened. Pistol grip versions also available (with push-start or push button)

**No maintenance**: brushless electric motors

**Versatile and advantageous investment**: the system can be adjusted to perform different assemblies at different torque and therefore it can be suitable for different applications, thus providing a considerable advantage in terms of investment costs.
POWER SUPPLY AND CONTROL UNIT:
WITH ONE TOUCH, ALL THE OPERATIONS YOU WANT

Auto feed electronic screwdrivers with direct control are combined 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)
- 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 used to backup and import/export tasks, and save tightening graphs
- 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
- 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.

Straight forward and intuitive programming

- 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
The screw heads used in our auto feed screwdrivers, are the result of lengthy experience and, being a fundamental element for high quality tightening, are designed and manufactured entirely by Fiam.

They hold the screw coming from the feeder and guide it correctly and safely to allow the bit to go down and tighten on the component.

The advantages:
• an excellent screw hold
• perfect control of the screw on the tightening point
• any depth can be reached
• tightening on all screws of all sizes, thanks to the high level of customisation
• quick and easy assembly and disassembly

Examples of special heads with friction jaws to access to deep tightening points, behind shoulders or for entering very narrow holes.

EVERY SCREW HAS ITS SIZE

<table>
<thead>
<tr>
<th>TTV - P</th>
<th>TTV - G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø screw head (mm)</td>
<td>L Total length of the screw (mm)</td>
</tr>
<tr>
<td>4,5 ÷ 7,0</td>
<td>max 25</td>
</tr>
<tr>
<td>M14 x 1</td>
<td>17</td>
</tr>
<tr>
<td>Ø16</td>
<td>9.89</td>
</tr>
</tbody>
</table>

Safe and reliable screw holding: the head is equipped with jaws which are opening to release the screw when the bit starts tightening the screw on the component. They can be of different types, depending on the screw or dimensions of the component to be tightened.

Quick unlocking system of the head: for fast and safe bit replacement.

Rotation of the head at 360°: in 6 positions to adjust based on the encumbrance on tightening points.

For all types of screw: the heads have 3 different sizes to take all the various screw types on the market and additionally they can always be customised.

High resistance to breaking and wearing: they are built with highest quality materials through precise and accurate machining together with the treatments.
**SOME OF THE MODELS AVAILABLE**

**WITH ANTI-OVERTURNING DEVICE**
When you have screws with screw length / head diameter, between 1.1 (approx) and 1.5, to avoid the screw jamming.

**WITH FRICTION JAWS**
that hold the screw on the head and not on the stem: no opening to allow the head to insert, without further encumbrances, even inside holes and deep tightening points.

**FOR BIG SCREWS**
to tighten screws up to 45 mm length.

**WITH HOSE**
to reach deep tightening points or inside holes.

**WITH SUPPORTS OR WITH SPECIAL MATERIALS**
to facilitate safe and easy positioning. Special materials and geometries are designed not to damage the components during assembly.

* For other models see pag. 24.
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.

* For different torque and speed than those indicated, please contact Fiam Technical Consultancy Service.

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**Models available upon request**

- **Models with screwdriver equipped with rotating piston**: for tightening on flat surfaces with particular encumbrances and with the screw visible

- **Pistol model with double grip**: an exclusive model to access to those working places otherwise unreachable by the traditional air screwdrivers

- **Pistol models with double grip** for ergonomic access to tightening points placed at different heights on vertical surfaces

- **Power supply equipped with two bowls** to process two different types of screw with a single screwdriver

- **Feeders with higher capacity bowl**: Ø 420 mm and 3 litre capacity. Equipped with sound-absorbing panels

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**Legend**

- Non-reversible screwdriver (only tightening)
- Reversible screwdriver

- Lever start
- Push button

**Recommended hose bore**

ø 8 mm

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Each solution is evaluated and customized according to the type of screw, the component to be assembled and the production needs. The data in the table therefore only provide an indication.

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For all further details, please contact the Fiam Technical Consultancy Service.
**Accessories available upon request**

**TOM – MONITORING UNIT FOR THE TIGHTENING PROCESS**
For real-time verification of the tightening process to eliminate the need for post process controls. Available for all models except the auto feed air screwdriver with telescopic device.
Code TOM: 685001062.
Code connecting cable TOM/EasyDriver: 685001074
For more information, please see page 14 and the on-line catalogue.

**BT-MG MAGNESIUM TELESCOPIC ARMS**
Telescopic arms in magnesium alloy, designed and produced by Fiam, extremely resistant to mechanical stress thus guaranteeing reliability and long life span, thanks to accurate manufacturing process and applied innovative materials.
Designed with different telescoping extension elements (3 for all models and 2 for BT-MG 10...), they are conform for working areas according to various productive needs.
Double terminal coupling guarantees great handiness and maximum freedom of action also for inclined tightening operations. They can be easily installed on existing workplaces on ceiling or wall using a simple plate with reduced dimensions.

<table>
<thead>
<tr>
<th>Model</th>
<th>Code</th>
<th>Max torque Nm</th>
<th>Max work range (mm)</th>
<th>Min work range (mm)</th>
<th>Ø max tool (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT-MG 15 800</td>
<td>692071409</td>
<td>15 132.70</td>
<td>860</td>
<td>505</td>
<td>26.5-50</td>
</tr>
<tr>
<td>BT-MG 15 1000</td>
<td>692071401</td>
<td>15 132.70</td>
<td>1070</td>
<td>575</td>
<td>26.5-50</td>
</tr>
<tr>
<td>BT-MG 15 1500</td>
<td>692071404</td>
<td>15 132.70</td>
<td>1580</td>
<td>745</td>
<td>26.5-50</td>
</tr>
<tr>
<td>BT-MG 40 800</td>
<td>692071410</td>
<td>40 354</td>
<td>860</td>
<td>505</td>
<td>26.5-50</td>
</tr>
<tr>
<td>BT-MG 40 1000</td>
<td>692071402</td>
<td>40 354</td>
<td>1070</td>
<td>575</td>
<td>26.5-50</td>
</tr>
<tr>
<td>BT-MG 40 1500</td>
<td>692071405</td>
<td>40 354</td>
<td>1580</td>
<td>745</td>
<td>26.5-50</td>
</tr>
<tr>
<td>BT-MG 40 2000</td>
<td>692071407</td>
<td>40 354</td>
<td>2120</td>
<td>925</td>
<td>26.5-50</td>
</tr>
</tbody>
</table>

**BT-MG MAGNESIUM TELESCOPIC ARMS WITH POSITIONING DEVICE**
The illustrated BT-MG arms as described above, can be equipped with a device for the detection of the correct position of the screwdriver on the tightening point. The models, come in two versions:
- BT-MG TPM1 arms...: models with single angle movement detection
- BT-MG TPM-2 arms...: models with angle and linear movement detection.
The arms must be integrated with the TPM monitoring unit code 692078019 and with the TOM monitoring unit code 685001062.
The system locates the positions of the screwdriver on the different tightening points and it memorizes the sequence (up to 35 positions/program for 8 programs). For more information, please see the on-line catalogue.

**MODELS WITH SINGLE ANGLE MOVEMENT DETECTION**

<table>
<thead>
<tr>
<th>Model</th>
<th>Code</th>
<th>Max torque Nm</th>
<th>Max work range (mm)</th>
<th>Min work range (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT-MG 15 800 - TPM1</td>
<td>692071425</td>
<td>15 132.70</td>
<td>985</td>
<td>630</td>
</tr>
<tr>
<td>BT-MG 15 1000 - TPM1</td>
<td>692071426</td>
<td>15 132.70</td>
<td>1195</td>
<td>700</td>
</tr>
<tr>
<td>BT-MG 15 1500 - TPM1</td>
<td>692071427</td>
<td>15 132.70</td>
<td>1705</td>
<td>870</td>
</tr>
<tr>
<td>BT-MG 40 800 - TPM1</td>
<td>692071428</td>
<td>40 354</td>
<td>985</td>
<td>630</td>
</tr>
<tr>
<td>BT-MG 40 1000 - TPM1</td>
<td>692071429</td>
<td>40 354</td>
<td>1195</td>
<td>700</td>
</tr>
<tr>
<td>BT-MG 40 1500 - TPM1</td>
<td>692071430</td>
<td>40 354</td>
<td>1705</td>
<td>870</td>
</tr>
<tr>
<td>BT-MG 40 2000 - TPM1</td>
<td>692071431</td>
<td>40 354</td>
<td>2245</td>
<td>1050</td>
</tr>
</tbody>
</table>

**MODELS WITH ANGLE AND LINEAR MOVEMENT DETECTION**

<table>
<thead>
<tr>
<th>Model</th>
<th>Code</th>
<th>Max torque Nm</th>
<th>Max work range (mm)</th>
<th>Min work range (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT-MG 15 800 - TPM2</td>
<td>692071422</td>
<td>15 132.70</td>
<td>985</td>
<td>630</td>
</tr>
<tr>
<td>BT-MG 15 1000 - TPM2</td>
<td>692071412</td>
<td>15 132.70</td>
<td>1195</td>
<td>700</td>
</tr>
<tr>
<td>BT-MG 15 1500 - TPM2</td>
<td>692071415</td>
<td>15 132.70</td>
<td>1705</td>
<td>870</td>
</tr>
<tr>
<td>BT-MG 40 800 - TPM2</td>
<td>692071423</td>
<td>40 354</td>
<td>985</td>
<td>630</td>
</tr>
<tr>
<td>BT-MG 40 1000 - TPM2</td>
<td>692071413</td>
<td>40 354</td>
<td>1195</td>
<td>700</td>
</tr>
<tr>
<td>BT-MG 40 1500 - TPM2</td>
<td>692071416</td>
<td>40 354</td>
<td>1705</td>
<td>870</td>
</tr>
<tr>
<td>BT-MG 40 2000 - TPM2</td>
<td>692071418</td>
<td>40 354</td>
<td>2245</td>
<td>1050</td>
</tr>
</tbody>
</table>
CARTESIAN ARMS BC AND BCA

The new FIAM Cartesian arms are fundamental solutions for ergonomics workplace. Designed and manufactured by Fiam, they allow extremely fluid and flowing operations and this translates into a significant increase in work precision, the consequent quality of the production process as well as ergonomics for the operator. All models are also available with positioning device for processing angular and linear movement detection on the work point. Discover all the advantages in terms of ergonomics for the operator in the catalog no. 79 “Accessories for ergonomic workplace”.

BA50 BALANCING ARM

It can be used with tools with diameters varying from 25 to 50 mm and with a maximum of 50 Nm tightening torque. This system guarantees extreme working precision because the tool is kept perfectly perpendicular to the piece being assembled: therefore it avoids any accidental damages to the materials for a higher quality of the assembled product.

FEEDING HOPPER WITH 10 LITRE OF CAPACITY

To connect to the screw feeder, it allows a great autonomy of screw feeding.

BALANCER

This suspension device for tools allows the operators:
• working safely (tools and accessories suspended in a bad way may hit the operator) and comfortably, eliminating any effort to lift the tool
• keeping a good wrist position

AUXILIARY GRIPS

To transform straight screwdrivers into pistol screwdrivers.

SPECIAL PACKAGING

A wooden crate can be provided for critical transportation of CA EasyDriver
Dimensions: mm L650x500xh715; Weight: kg 11

Standard equipment (supplied with the system)

• 4 bits
• Clutch adjustment key
• Keys for screw feeder’s use and maintenance
• Hanging ring
• Use and maintenance manual
• Eco-friendly packaging in paperboard (weight kg. 3)
Dimensions: mm L600x450xh520
EasyDriver: a solution for automation too

If used in conjunction with slides and electric or pneumatic nutrunner motors, the EasyDriver screw feeder can become a versatile tightening module to be incorporated into existing production systems when great results in terms of speed, productivity and quality are required.

In this case EasyDriver manages the entire working cycle with great flexibility because, in a quick and easy way:

• it manages the tightening sequences according to the specific applications
• it adjusts the machine parameters
• it integrates into automatic productive systems
• it manages input signals: tightening start, anomaly reset, emergency
• it gives output signals: anomaly, tightening result

Example of multiple MCA for shutters field: assembly from the top towards the bottom and from bottom towards the top
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 “Data Entry 4.0” 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!