Tightening automation.
Only excellent solutions.

EasyDriver: automatic screw feeding system

Fiam®
PEOPLE AND SOLUTIONS

Automatic screw feeding systems

Our focus on your production cyc

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

EXAMPLE OF ASSEMBLY WITH SCREWDRIVER MANUAL

		TOTAL TIME
PIECE LOADING	1,5s	1,5s
SCREW PICK-UP SCREW POSITIONING TIGHTENING	3,5s	5s
SCREW PICK-UP SCREW POSITIONING TIGHTENING	3,5s	8,5s
SCREW PICK-UP SCREW POSITIONING TIGHTENING	3,5s	12s
SCREW PICK-UP SCREW POSITIONING TIGHTENING	3,5s	15,5s
PIECE UNLOADING	1,5s	17s

EXAMPLE OF ASSEMBLY WITH SCREWDRIVER AUTOMATIC

		TOTAL TIME
PIECE LOADING	1,5s	1,5s
TIGHTENING	2s	3,5s
TIGHTENING	2s	5,5s
TIGHTENING	2s	7,5s
TIGHTENING	2s	9,5s
PIECE UNLOADING	1,5s	11s

TIME SAVED:
6 seconds
– 35%

le: to save you time and money

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.

		HOW IT WAS	→ HOW IT IS NOW
PHASE		OPERATOR TIME (seconds)	OPERATOR TIME (seconds)
1	Component pick-up	1	1
2	Right insert pick-up	0,5	0,5
3	Right insert placement	0,5	0,5
4	Screw 1 pick-up	0,5	~~0,5~~
5	Screw positioning on screwdriver	0,5	~~0,5~~
6	Component/screwdriver approach	1	1
7	Tightening screw 1 on insert	0,2	0,2
8	Screw 2 pick-up	0,8	~~0,8~~
9	Screw positioning on screwdriver	0,5	~~0,5~~
10	Component/screwdriver approach	1	1
11	Tightening screw 2 on insert	0,5	0,5
12	Left insert pick-up	1,5	1,5
13	Left insert placement	0,5	0,5
14	Screw 3 pick-up	1	~~1~~
15	Screw positioning on screwdriver	0,5	~~0,5~~
16	Component/screwdriver approach	1	1
17	Tightening screw 3 on insert	0,5	0,5
18	Screw 4 pick-up	0,5	~~0,5~~
19	Screw positioning on screwdriver	0,5	~~0,5~~
20	Component/screwdriver approach	0,5	0,5
21	Tightening screw 4 on insert	0,5	0,5
22	Component placement on bench	1	1
		15 s TOTAL	→ **10,20 s** TOTAL

–32%

(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!**

Automatic screw feeding system

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.

Technical features	
Air connection:	G 3/8 Female
Power features:	230V/50Hz - Optional: 230V/60 Hz and 120V/60 Hz
Maximum feed:	60 screws/minute
Air consumption:	max 16 l/s
Noise level:	< 80 dBA
Diameter of the bowl:	Ø 240 mm
Capacity of the bowl:	1 L = 1 dm^3
Weight:	36 kg
Connecting hose to the screwdriver:	5 mt
Dimensions (mm):	L 450 x Width 340 x h 400
Internal hose diameter:	14 mm
Power: (maximum consumption)	180 VA for air screwdrivers 780 VA for electronic screwdrivers

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

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

Immediate monitoring

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

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

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

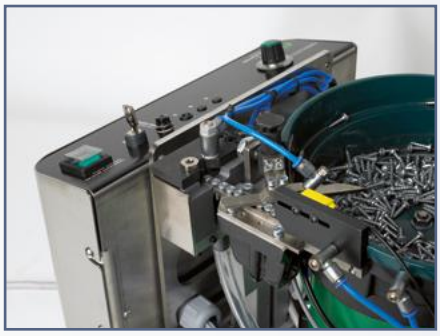
The screw is shot inside a closed chamber which optimises the productive process

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



High frequency selector

It increases speed and productivity; able to feed up to 60 screws per minute

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

Internal structure in stainless steel

To guarantee long lifetime

PLC

PRINTER

For screws L ≤ 35 mm

SCREW

PC

TOM MONITORING UNIT

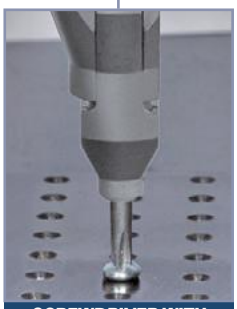
- Poka-Yoke system
- Warning at the end of cycle and in case of error
- Screws count (up to 99), program end signal
- View nr. of program, nr. of screws to be tightened, nr. of set sequence, nr. of screws tightened on the total
- Discriminate the untightenings

TOWER-LIGHT WITH ALERT

ALSO WITH PISTOL GRIP

AUTO FEED AIR SCREWDRIVER

0,5 ÷ 10 Nm



SCREWDRIVER WITH FORWARD BIT STROKE

SCREWDRIVER WITH TELESCOPIC DEVICE

1 SENSOR

2 SENSORS

A variety of use configurations

FOR EVERY TIGHTENING NEED WITH VARIOUS SCREWS:

- Metric
- Self-threading
- Self-drilling
- Three-lobe
- With knurled washer under the head
- With double thread
- ...

FEEDER

→ For screws L > 35 mm

AUTO FEED ELECTRIC SCREWDRIVER

0,5 ÷ 5 Nm

ALSO WITH PISTOL GRIP

WITH DIRECT CONTROL

WITH INDIRECT CONTROL

AUTO FEED ELECTRONIC SCREWDRIVER

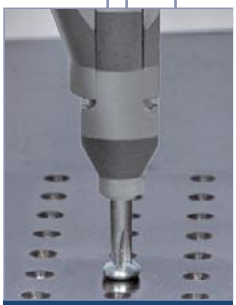
0,5 ÷ 10 Nm

WITH DIRECT CONTROL

AUTO FEED ELECTRONIC SCREWDRIVER

0,1 ÷ 5,6 Nm

ALSO WITH PISTOL GRIP



SCREWDRIVER WITH FORWARD BIT STROKE

PATENTED by FIAM

Forward bit stroke device: tech

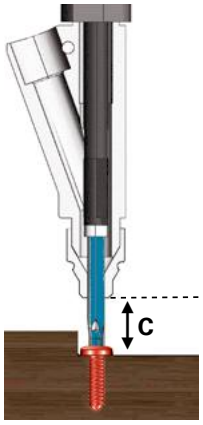
The patented forward bit stroke, designed and manufactured by Fiam, is available for all air, electric and electronic screwdrivers. It provides **automatic bit ejection** reducing operator fatigue, keeps the screw visible and prevents it from going back. In addition, during the tightening phase, the 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.

The advantages

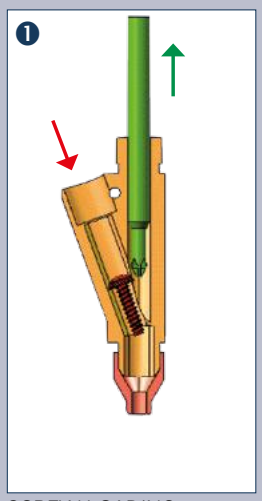


C = BIT EJECTION

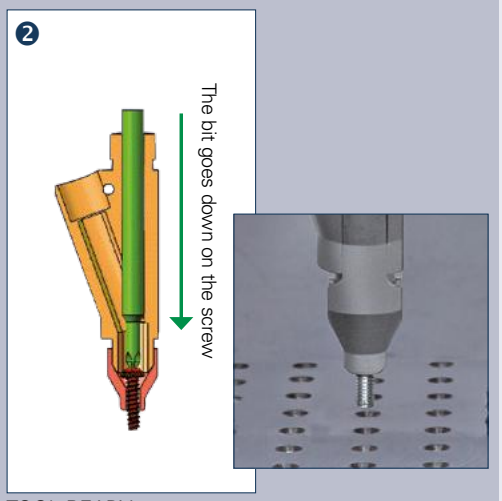
TYPE OF FORWARD BIT STROKE DEVICE	HEAD TTV-P	HEAD TTV-G	HEAD TTV-M
WITH STANDARD STROKE	21	18	15
WITH MEDIUM STROKE	46	43	40
WITH LONG STROKE	21	18	15

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

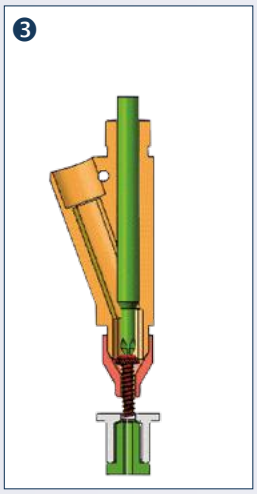
(measurements are indicative and may differ depending on the application and the screw used)



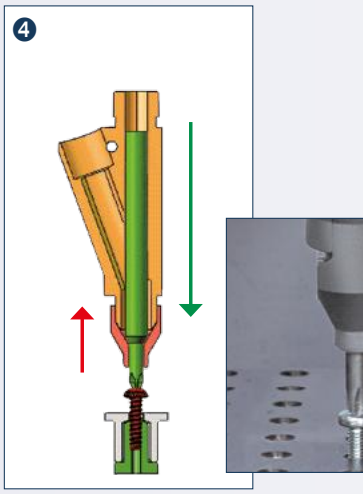
SCREW LOADING:
automatic screw feed



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

nology and advantages

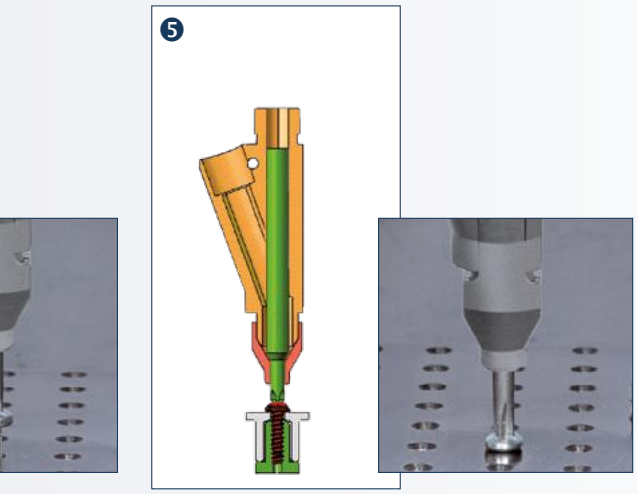
Components are not damaged
Screw tip is in sight and the bit forward stroke automatically retracts screwdriver's nozzle thus, parts surface is left untouched (varnished surfaces, electronic cards)

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

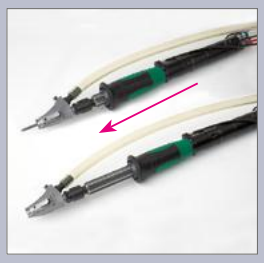
Long bit stroke
Allows reaching tightening points with difficult access (such as close to sidewalls) or narrow recesses

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



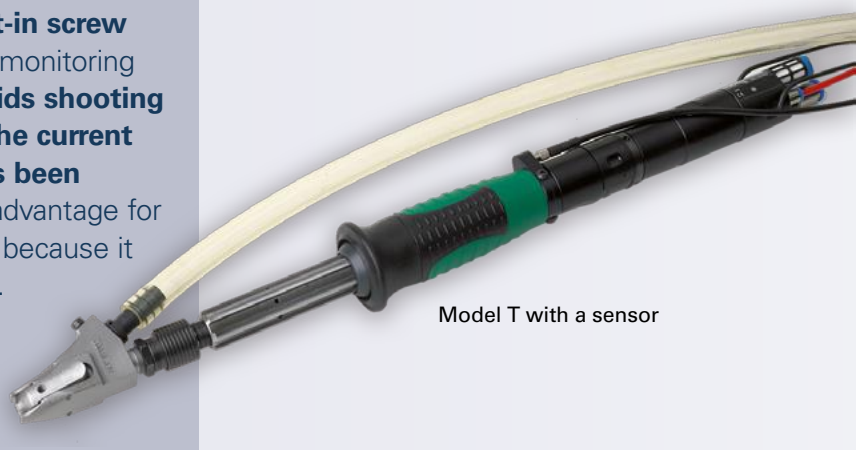
END OF TIGHTENING:
the screw is tightened

Choose the telescopic device, for workin

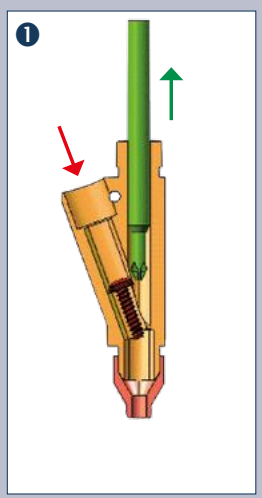


When it is necessary to reach tightening points close to sidewalls, in limited or very deep spaces, the ideal choice is the **telescopic device designed to be used with Fiam air screwdrivers.**
The device makes it possible to reach the required depths and therefore to tighten inside holes. Screwdrivers with an internal telescopic stroke of 75 mm and 105 mm are available.

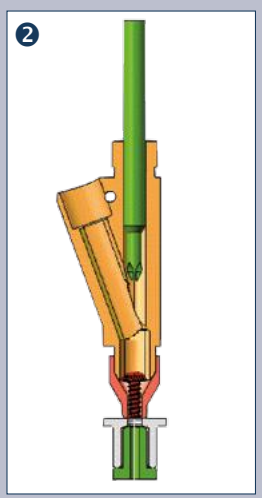
The internal mechanics of the device feature a **built-in screw shooting sensor** by monitoring the head stroke, **avoids shooting a new screw until the current tightening cycle has been completed:** a great advantage for operator productivity because it prevents screw jams.
The device provides screwdrivers with a lever or push button starting system, depending on the working needs.



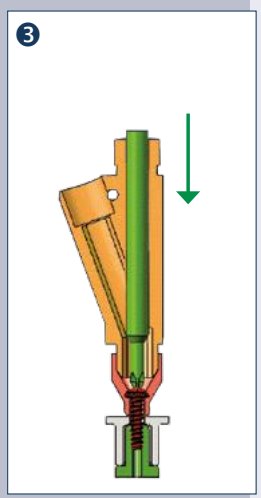
Model T with a sensor



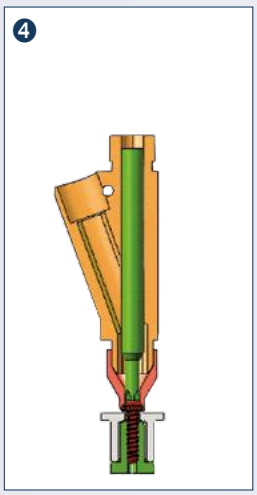
SCREW LOADING:
automatic screw feed



TOOL CONTACT:
the jaws of the screwdriver touch the surface



TIGHTENING:
Push start system, the bit goes down and tightens

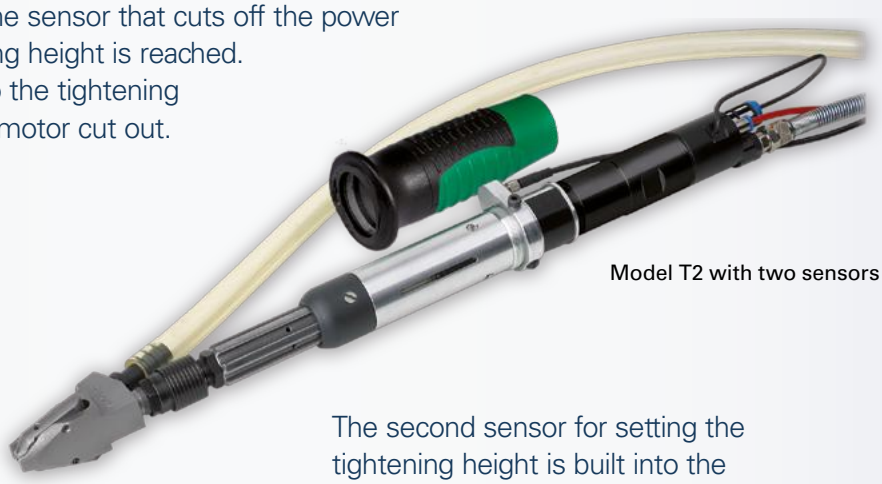


END OF TIGHTENING:
The screw is tightened, the jaws always remain in contact with the surface

g in depth

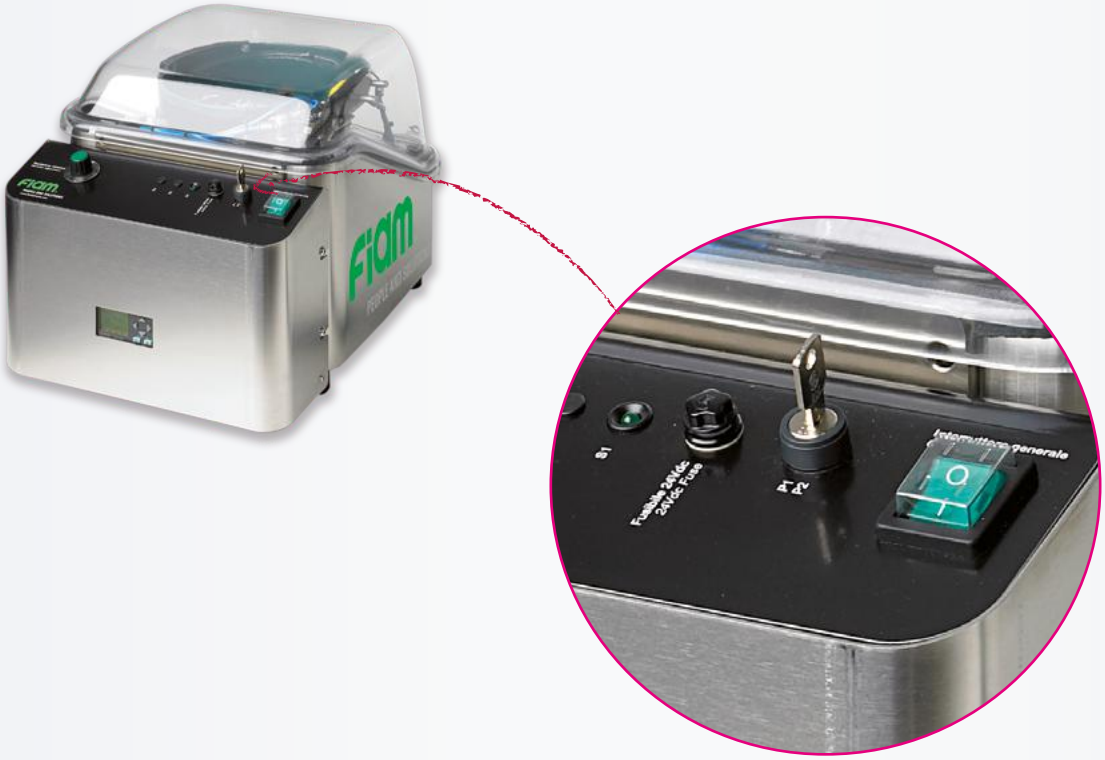
Double advantage of the model with 2 sensors that can work with torque control or height control

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.



Model T2 with two sensors

The second sensor for setting the tightening height is built into the tool and is easily adjusted



Selector for opting to work with either torque control or tightening height control

AUTO FEED AIR
SCREWDRIVERS

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).

TELESCOPIC

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/s^2

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

AUTO FEED AIR
SCREWDRIVER
WITH POKA YOKE CONTROL

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.


It warns the operator at the end of cycle


It warns the operator in case of error


It can stop the working cycle in case of error caused by the operator

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

3,2,1

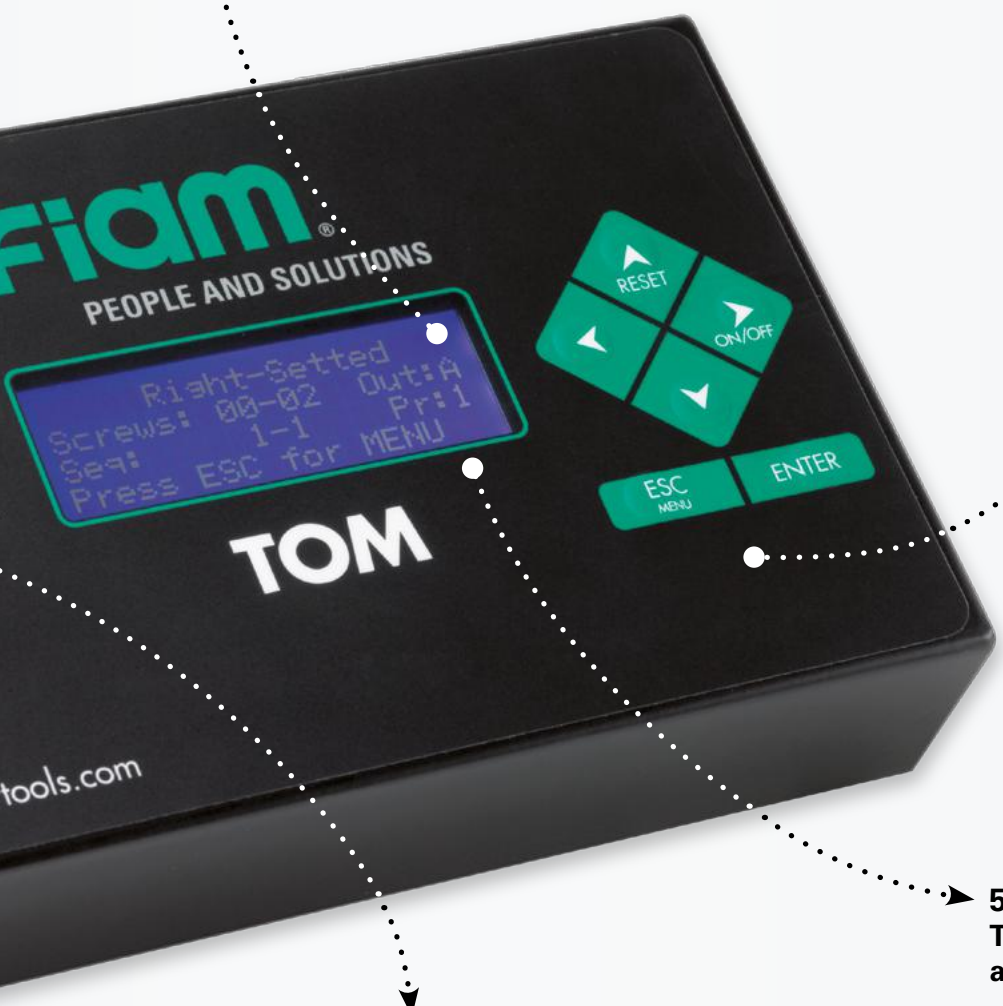
NUMBER OF SCREWS TO BE TIGHTENED

- 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

LARGE DISPLAY

- nr. of program in use
- nr. of set sequence
- nr. of screws to be tightened
- nr. of screws tightened on the total

Discover how it works.



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

OK

CYCLE END

NOK

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

AUTO FEED ELECTRIC
SCREWDRIVERS

Maximum accuracy, minimum maintenance

They are suitable for specific assembly work with smalland 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

AUTO FEED ELECTRONIC
SCREWDRIVERS

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

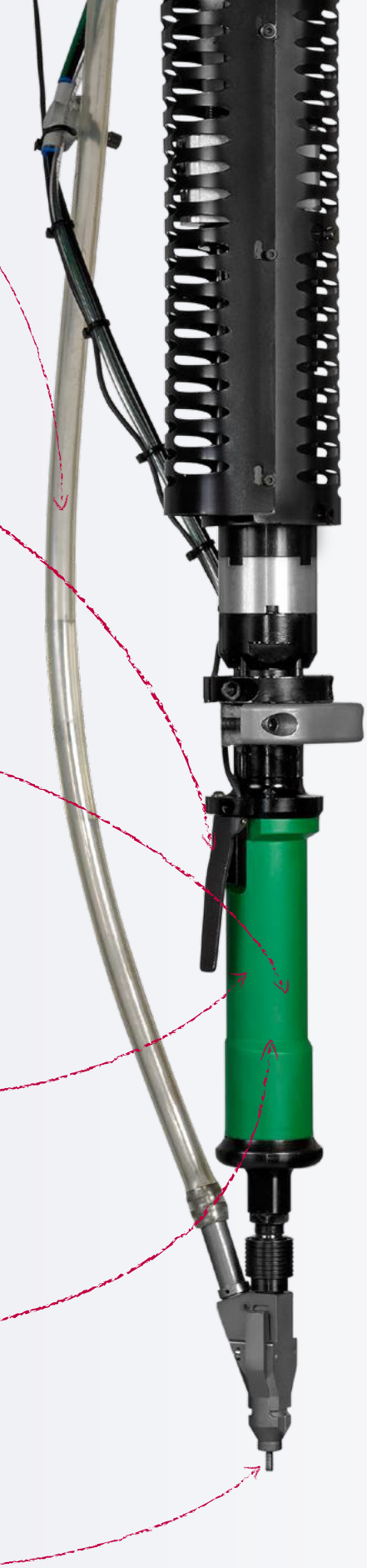
Easy and functional starting system. For models with forward bit stroke device, one click of the lever starts the tightening process and with a double click the screw is shot. Its operation is managed by the PLC located in the screw feeder and therefore, besides being reliable, it can be programmed and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

TCS-B E

- **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.

FORWARD BIT STROKE

AUTO FEED ELECTRONIC
SCREWDRIVERS

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.

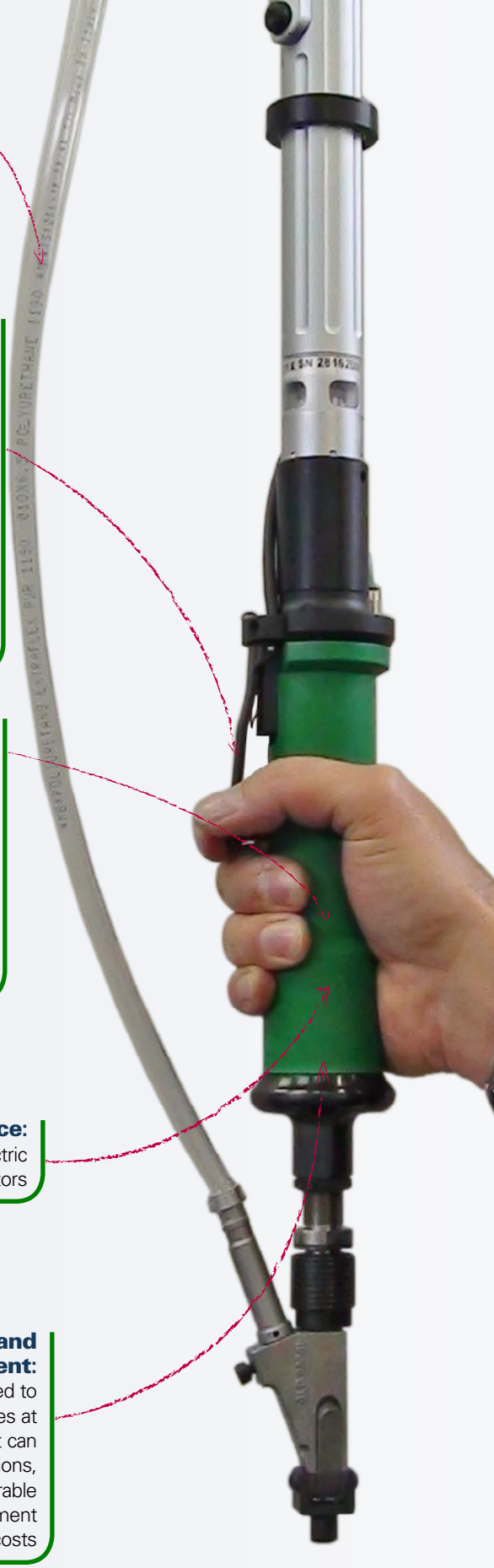
The screw is shot inside a closed chamber which **optimises screw speed considerably**: there is no longer any dissipation of compressed air

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



FORWARD BIT STROKE

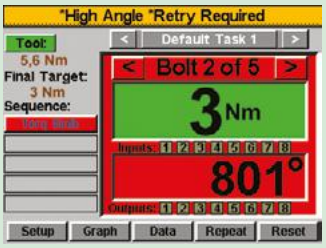
POWER SUPPLY AND CONTROL UNIT: WITH ONE TOUCH, ALL THE OPERATIONS YOU WANT

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:**

CT2500 A

- 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

Display of tightening parameters and strategies

Heads that make the difference!

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

High resistance to breaking and wearing: they are built with highest quality materials through precise and accurate machining together with the treatments

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

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

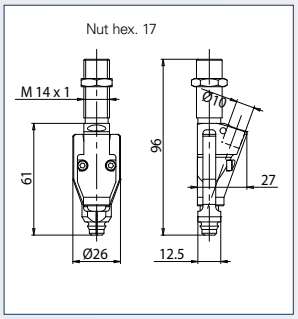
Rotation of the head at 360°: in 6 positions to adjust based on the encumbrance on tightening points

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

EVERY SCREW HAS ITS SIZE

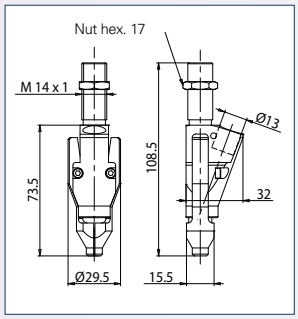
TTV - P

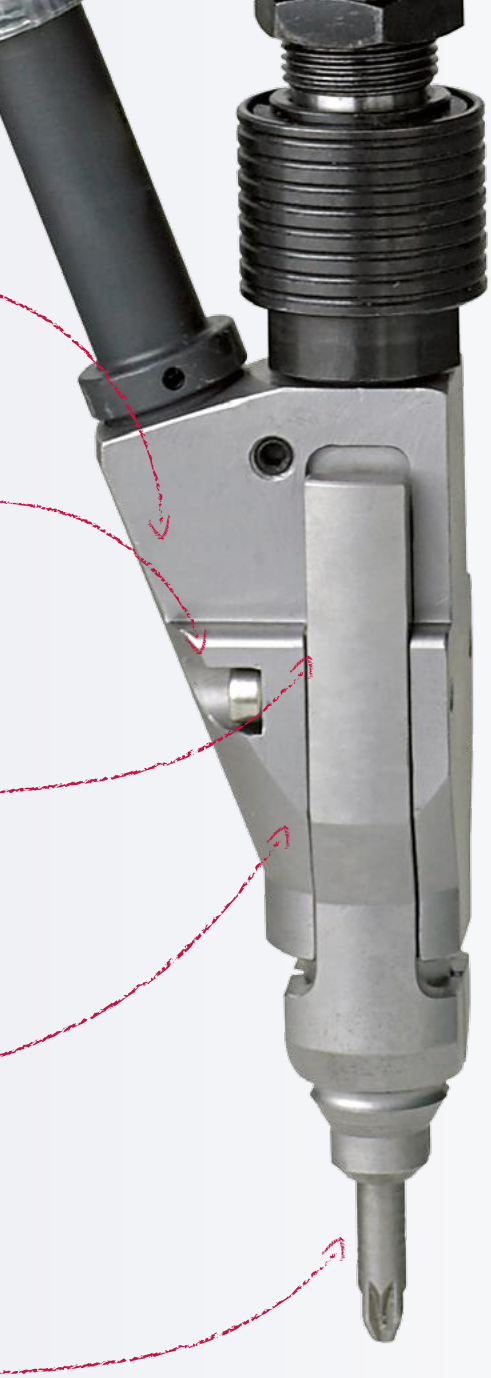
Ø screw head (mm)	L Total length of the screw (mm)
4,5 ÷ 7,0	max 25



TTV - G

Ø screw head (mm)	L Total length of the screw (mm)
7,1 ÷ 10,0	max 35





SOME OF THE MODELS AVAILABLE

WITH ANTI-OVERTURNING DEVICE

When you have screws with screw length / head diameter, between1.1 (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

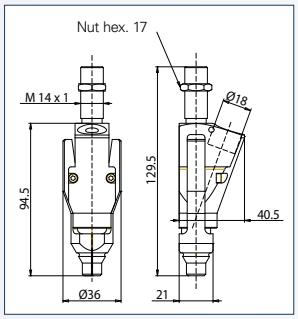
WITH SUPPORTS OR WITH SPECIAL MATERIALS

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.

TTV - M

Ø screw head (mm)	L Total length of the screw (mm)
10,1 ÷ 13,5	max 35



		Model	Grip: Type	Tightening torque: Soft joint Nm	Tightening torque: Soft joint in lb	Idle speed rpm	Starting system: Type	Reversibility: Type	Air consumption l/s	Driver and control system to use
AUTO FEED AIR SCREWDRIVER	WITH FORWARD BIT STROKE	CA - A - A		0,5 ÷ 10	4.43 ÷ 88.5	650 ÷ 2000			5 ÷ 9	-
		CA - A - P - A		0,5 ÷ 10	4.43 ÷ 88.5	650 ÷ 2000			5 ÷ 9	-
	TELESCOPIC	CA -T/T2		0,5 ÷ 10	4.43 ÷ 88.5	650 ÷ 2000			5 ÷ 9	-
		CA - P -T/T2		0,5 ÷ 10	4.43 ÷ 88.5	650 ÷ 2000			5 ÷ 9	-
AUTO FEED ELECTRIC SCREWDRIVER	WITH FORWARD BIT STROKE	CA - A - A		0,5 ÷ 5	4.43 ÷ 44.25	600/1000			-	BECT...SSOE
		CA - A - P - A		0,5 ÷ 5	4.43 ÷ 44.25	600/1000			-	BECT...SSOE
AUTO FEED ELECTRONIC SCREWDRIVER	WITH FORWARD BIT STROKE CURRENT CONTROL	CA - 15CB...C - A		0,5 ÷ 10	4.43 ÷ 88.5	700/1700			-	TCS - B - E
	TORQUE/ANGLE CONTROL	CA - 15CB...A - A		0,5 ÷ 10	4.43 ÷ 88.5	350/1700			-	TCS - B - E
		CA-SD2500...FX-A		0,1 ÷ 5,6	1 ÷ 50	500/1700			-	CT2500A

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

Legend

Non-reversible screwdriver (only tightening)

Reversible screwdriver

Lever start **Push button**

Push to start

Recommended hose bore

ø 8 mm

- How to order: contact your local distributor or Fiam Technical Consultancy Service.

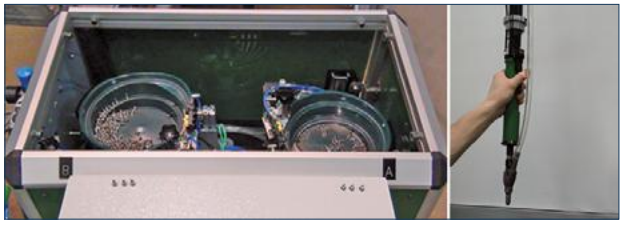
Each solution is evaluated and customized according to the type of screw, the component to be assembled and the production needs. The data in the table therefore only provide an indication.

The data given in the table are indicative and can be changed without prior notice. The torque values are purely indicative andmay 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**.

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



Single screwdriver for processing different types of screws

- **Models with screw heads** different from those shown in the catalogue, all customised depending on the component
- **UpGrip pistol models**: 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

"UpGrip" pistol model

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.

Model	Code	Max torque Nm	Max torque in lb	Max work range (mm)	Min work range (mm)	Ø max tool (mm)
BT-MG 15 800	692071409	15	132,70	860	505	26.5-50
BT-MG 15 1000	692071401	15	132,70	1070	575	26.5-50
BT-MG 15 1500	692071404	15	132,70	1580	745	26.5-50
BT-MG 40 800	692071410	40	354	860	505	26.5-50
BT-MG 40 1000	692071402	40	354	1070	575	26.5-50
BT-MG 40 1500	692071405	40	354	1580	745	26.5-50
BT-MG 40 2000	692071407	40	354	2120	925	26.5-50

+

TPM

Code 692078019

+

TOM

+

Cable TPM/CA

Code 692079181

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

Model	Code	Max torque Nm	Max torque in lb	Max work range (mm)	Min work range (mm)
BT-MG 15 800 - TPM1	692071425	15	132,70	985	630
BT-MG 15 1000 - TPM1	692071426	15	132,70	1195	700
BT-MG 15 1500 - TPM1	692071427	15	132,70	1705	870
BT-MG 40 800 - TPM1	692071428	40	354	985	630
BT-MG 40 1000 - TPM1	692071429	40	354	1195	700
BT-MG 40 1500 - TPM1	692071430	40	354	1705	870
BT-MG 40 2000 - TPM1	692071431	40	354	2245	1050

MODELS WITH ANGLE AND LINEAR MOVEMENT DETECTION

Model	Code	Max torque Nm	Max torque in lb)	Max work range (mm)	Min work range (mm)
BT-MG 15 800 - TPM2	692071422	15	132,70	985	630
BT-MG 15 1000 - TPM2	692071412	15	132,70	1195	700
BT-MG 15 1500 - TPM2	692071415	15	132,70	1705	870
BT-MG 40 800 - TPM2	692071423	40	354	985	630
BT-MG 40 1000 - TPM2	692071413	40	354	1195	700
BT-MG 40 1500 - TPM2	692071416	40	354	1705	870
BT-MG 40 2000 - TPM2	692071418	40	354	2245	1050

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 positionning 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".

Description	Code
Cartesian Arm BC25	692031032
Cartesian Arm BC40	692031033
Cartesian Arm BC40/7	692031038
Articulated Cartesian Arm BCA25	692031036
Articulated Cartesian Arm BCA40	692031037

For models with positionning device to process angular and linear movement detection, see catalogue 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.

Description	Code
Balancing arm BA50	692031008

FEEDING HOPPER WITH 10 LITRE OF CAPACITY

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

Feeding hopper with 10 litre of capacity

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

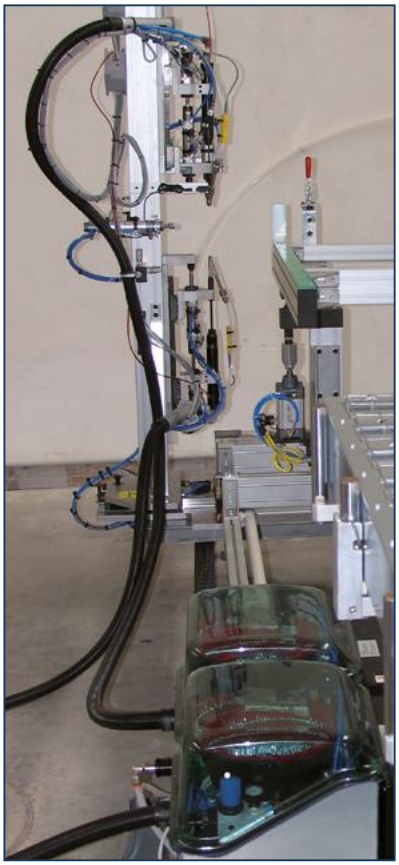
If used in conjunction with slides and electric or pneumatic nutrunner motors, the EasyDriver screw feeder can become a versatile tightening module to be **incorporated into existing production systems** when **great results** in terms of **speed, productivity** and quality are required.

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

Screw feeder + **Fastening slide** + **Nutrunner motor (air or electric)**

Example of MCA with collaborative robot



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!

https://www.fiamgroup.com/en/request-a-quotation/

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Quality Management System Certificate

Environmental Management System Certificate