

Tightening automation.

Only excellent solutions.



High-tech automatic tightening solutions

Fiam[®]
PEOPLE AND SOLUTIONS

Automatic tightening solutions.

The best of Fiam for your production.

They allow to control, monitor, analyze, diagnose and programme in real-time.

They can be integrated perfectly with the network control systems of the production site.

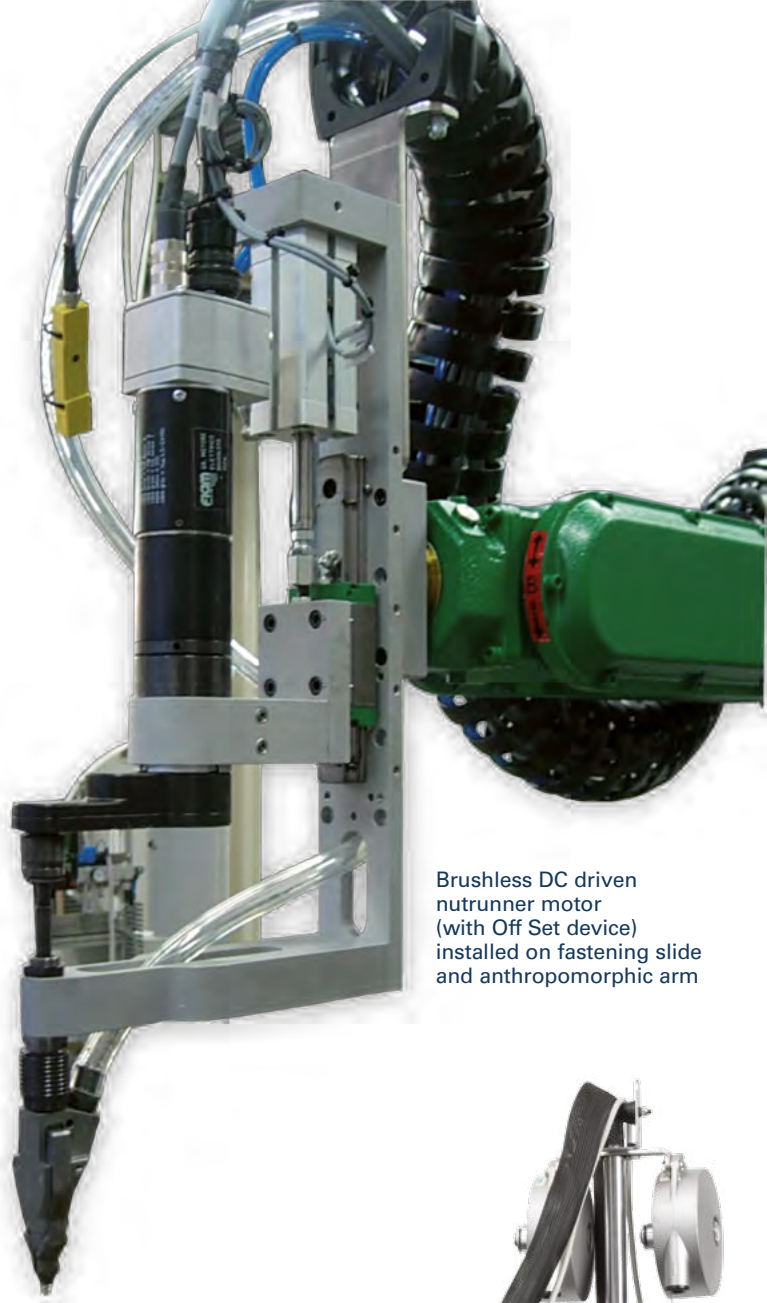
They guarantee a very high control of the productive process and consequently of the quality of the assembled products.

These are the new Fiam solutions for industrial tightening:

a concentrate of innovation
and reliability.



- ➔ **For any threaded element**
- ➔ **Semi-automatic solutions: a valuable help for operators**
- ➔ **Multi-spindle tightening units: they assemble several fasteners simultaneously**
- ➔ **Anthropomorphic robot, versatile and always convertible**
- ➔ **Electronic axis to ease assembly on different surface**



Brushless DC driven nutrunner motor (with Off Set device) installed on fastening slide and anthropomorphic arm



Pallets automatic line to fasten the screws on thermo-hydraulic collectors



Manual use on cartesian arm

Configurations

High technology DC driven nutrunner motors with feed and control unit: perfect synergy for high quality assemblies

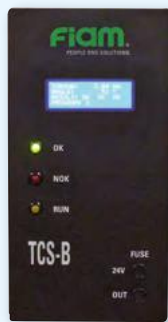
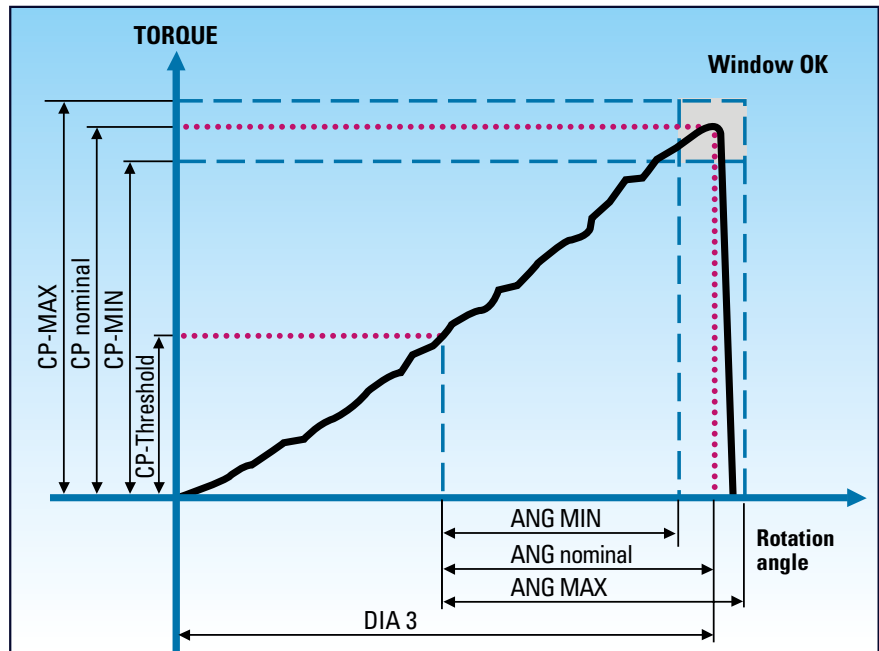
- This wide range of high-tech DC electronic nutrunner motors along with the controller guarantees extreme precision and accuracy of every industrial assembly
- Several configurations with different modes of torque control and monitoring to solve any tightening need, even most difficult ones
- Suitable for all industrial fields from motor vehicle to aerospace, from electric household appliances to electro-mechanical field. These solutions guarantee all over:
high flexibility of tightening process, easy integration in the productive lines, traceability of all tightening data, costs reduction thanks to reduction of waste.

RANGE: 0,5 ÷ 150 Nm



- INDIRECT (current control) and DIRECT (torque/angle control with built-in transducer) brushless DC driven nutrunner motors

Different control modalities available: torque control with angle monitoring, angle control with torque monitoring, only torque control.



• Feed and control unit

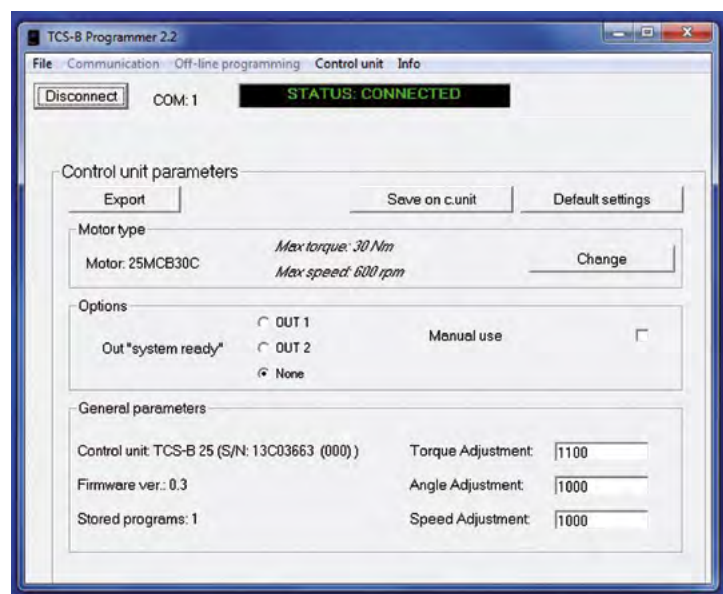
Feed and control unit TCS-B E: the intelligent simplicity

TCS-B E (*Tightening Control System - Basic - Evolution*) are innovative and compact units that include **electronic feeding to the motors, programming and control of each stage of tightening cycle**. They control both current control and torque/angle nutrunner motors.

- ➔ **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



- **“Accessory release” sequence:** programmable instruction to be used when the accessory and/or screw drive collapse preventing release of screw/accessory, thus stop the working cycle. Therefore it guarantees operating continuity and high productivity in the automatic working cycles
- **“Plug&Play” system:** automatic adjustment of torque transducer signal (for torque/angle control systems)
- **Working test**
(inputs and outputs work, motor speed, motor connection control, feeding tension and temperature values)



System Display

TCS-B Programmer

TCS-B Programmer is the software supplied with the unit and allows a lot of advantages:

Simple, intuitive connections and programming

- 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 sufficient 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.

Fast arrangement of control process

- **Torque/angle/speed adjustment:** easy change of parameters through preset 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

- **Diagnostics:** 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.

Torque/Angle Strategy

SEQUENCE: TORQUE/ANGLE STRATEGY

Init. Speed (%): 0

Masking time (ms): 0

End Speed (%): 0

Speed change masking time (ms): 0

Speed change torque (%): 0

Angle meas. threshold (%): 0

Nominal Torque (Nm): 0

Sensor Input:

MAX Torque (Nm): 0

MIN Torque (Nm): 0

MAX Angle (°): 0

MIN Angle (°): 0

Time-Out (ms): 0

Insert Cancel

TCS-B Programmer 2.2

File Communication Off-line programming Control unit Info

Disconnect COM: 1 STATUS: CONNECTED

Programming

New Open Export Save on PC Save on c.unit

MOTOR: 25MCB30C
MAX SPEED: 600 rpm
MAX TORQUE: 30 Nm

AVAILABLE SEQUENCES:

Jog
Torque Strategy
Torque/Angle Strategy
Angle/Torque Strategy
Untighten
Fastener release
Wait
Output
Display/Print

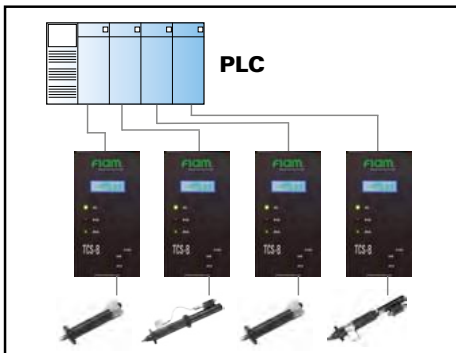
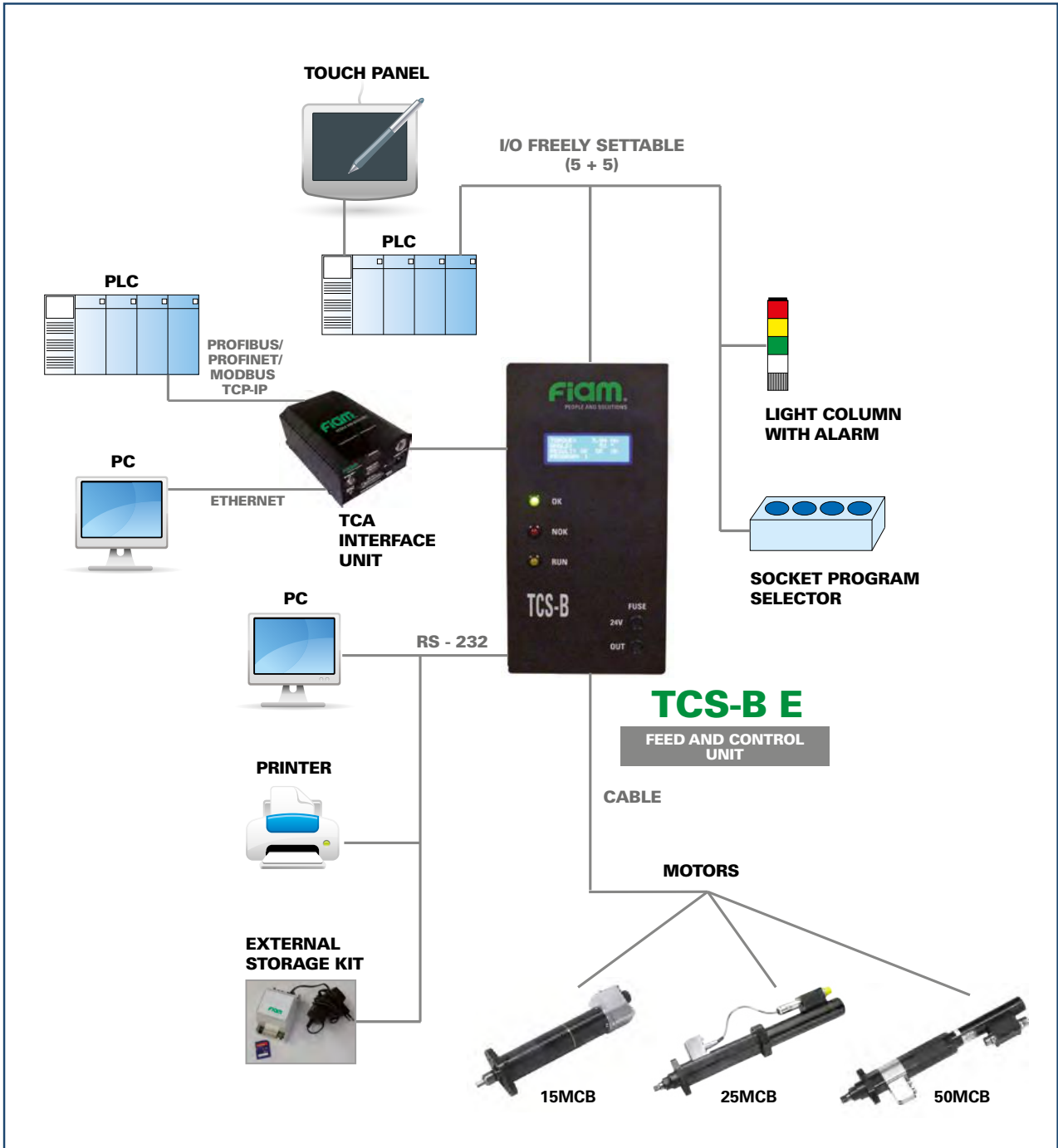
PROGRAM:

0% 100%
Program size: 16%

Torque Strategy
Display/Print
Wait
Untighten

Merge UP
Merge DOWN
DELETE SEQ.
DELETE ALL

Layout



Accessories upon request

INTERFACE UNIT TCA

The Interface unit (*Tightening Control Adapter*) is available in 2 versions:

- TCA-PN Interface Unit for Profinet e Modbus TCP-IP
- TCA-PB Interface Unit for Profibus.

Both units **work with the TCS-B E**, are entirely designed and manufactured by Fiam and allow to interface and to control digital I/Os and export all output data directly through the PROFINET / MODBUS TCP-IP and PROFIBUS communication protocol. The TCA-PB model has an additional gateway for Profibus protocol.

From the PLC Master, through communication protocols TCA is able:

- **To export multiply data** (to es: tightening torque in Nm; angle values; overall outcome of tightening sequence; number of selected tightening program...)
- **To receive all the commands**
- It allows to assign to TCS-B E unit an univocal Ethernet address
- Through the program for PC and connection Ethernet allows of:
 - to visualize the last tightening result and print the last 30 results on file TXT
 - to set TCA Ethernet address
 - to visualize and to command the I/Os of the TCS-B E for diagnostic activities
- It can be installed in rapid and simple way.

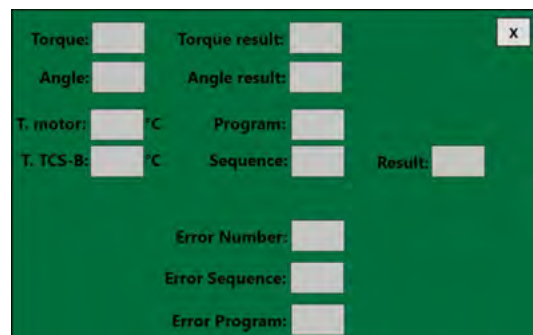
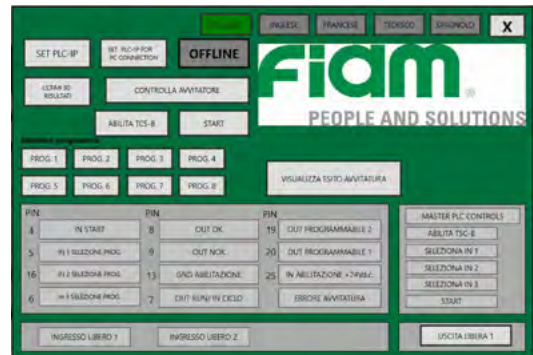


Both Units are equipped with the TCA-PC program (supplied on electronic format) which allows:

- For PROFINET-MODBUS systems to connect the Ethernet network of the Master PLC
- For PROFIBUS systems to connect the dedicated Ethernet network (integrated into the system).

Following technical features:

- Visualization I/O status TCS-B E
- Possibility to check the overall output of each nutrunner, directly from a remote PC, without interrupting the work process
- Checking the last tightening in real-time
- Memorize the last 30 results and save them on TXT files
- Monitoring the state of the master PLC commands to the TCS-B E units
- Possibility, with disconnected Master PLC, to simulate the PLC master by directly piloting the TCSB E Unit for diagnosis and simulation
- Creating the access address of the two TCA interface Units, both for master PLCs and for the program
- No installation request. Simply save the program (supplied on electronic media) to your PC
- It can work on multiple TCA Units, simply by selecting the Ethernet address of the desired Unit
- Version in 5 languages: Italian, English, French, Spanish and German



Type of Interface Unit		Communication Protocol	Feed	Dimensions (H x P x L) mm
Model	Code			
TCA-PN	686200402	for Profinet and ModbusTCP-IP	90÷260V / 50/60 Hz	92,7 x 147,5 x 225
TCA-PB	686200403	for Profibus	90÷260V / 50/60 Hz	92,7 x 147,5 x 225

EXTERNAL STORAGE KIT

Device able to collect serial data processed by the unit, couple them with date and hour and store them in digital storage card supplied with. The card has a 2GB capacity and can be used with PC for data storage and processing. Supplied with electric supply unit (IN100-240Vac 50-60Hz / OUT 12 Vdc), serial interface cable for unit, 2GB capacity digital storage card. Programming.

Model	Code	Storage capacity
External storage kit	686001005	2 GB



Example of data stored

File	Modifica	Formato	Visualizza ?									
2012/04/17	17:09:46	S	:	10.65	Y	:	Y	879	24	:	1	:
2012/04/17	17:09:49	S	:	10.20	Y	:	Y	878	24	:	1	:
2012/04/17	17:09:51	S	:	10.53	Y	:	Y	879	24	:	1	:
2012/04/17	17:09:54	S	:	10.12	Y	:	Y	878	24	:	1	:
2012/04/17	17:09:56	S	:	10.39	Y	:	Y	879	24	:	1	:
2012/04/17	17:09:58	S	:	10.61	Y	:	Y	878	24	:	1	:
2012/04/17	17:10:01	S	:	10.08	Y	:	Y	878	25	:	1	:
2012/04/17	17:10:03	S	:	10.39	Y	:	Y	878	25	:	1	:
2012/04/17	17:10:06	S	:	10.08	Y	:	Y	878	25	:	1	:
2012/04/17	17:10:08	S	:	10.22	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:10	S	:	10.68	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:13	S	:	10.01	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:15	S	:	10.22	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:17	S	:	10.69	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:20	S	:	10.19	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:22	S	:	10.08	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:25	S	:	10.54	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:28	S	:	10.69	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:30	S	:	10.27	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:33	S	:	10.05	Y	:	Y	880	25	:	1	:
2012/04/17	17:10:35	S	:	10.32	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:38	S	:	10.74	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:40	S	:	10.07	Y	:	Y	879	25	:	1	:
2012/04/17	17:10:42	S	:	10.43	Y	:	Y	879	25	:	1	:
2012/04/17	17:13:36	S	:	10.57	Y	:	Y	879	25	:	1	:
2012/04/17	17:13:39	S	:	10.20	Y	:	Y	879	25	:	1	:
2012/04/17	17:13:42	S	:	10.68	Y	:	Y	879	25	:	1	:
2012/04/17	17:13:44	S	:	10.07	Y	:	Y	879	25	:	1	:
2012/04/17	17:13:47	S	:	10.53	Y	:	Y	879	25	:	1	:
2012/04/17	17:13:49	S	:	10.36	Y	:	Y	878	25	:	1	:
2012/04/17	17:13:52	S	:	10.57	Y	:	Y	879	25	:	1	:
2012/04/17	17:13:54	S	:	10.36	Y	:	Y	879	25	:	1	:

- 1 = Tightening date
- 2 = Tightening hour
- 3 = Character of start of printing string
- 4 = Tightening torque in Nm
- 5 = Tightening torque outcome (Y = yes, N = No)
- 6 = Space for angle values (detected in degrees but not present in this example)
- 7 = Tightening angle outcome (Y = yes, N = No)
- 8 = Overall outcome of tightening sequence (Y = yes, N = No)
- 9 = Parameter of motor temperature
- 10 = Temperature of feeding and control unit (in °C degrees)
- 11 = Number of selected tightening sequence
- 12 = Selected program number

PROGRAM EXPANSION

TCS-B E units can be activated to further 4 tightening programs (for a max of 8 programs). It is sufficient to buy the activation code that will be supplied separately. Cod. 686200904

Model	Code	Tightening programs
Program Expansion	686200904	4 + 4



Technical features

Feed and control unit TCS-B E

Weight (Kg)	9,5÷10,6
Dimensions (mm)	390x155x305
Output tension driver motor (dc link)	70/300 Volt
Max power	600VA - 2kVA
Display (lines/columns)	4x20
Graphic display	No
Programming keypad	No
Display torque/time curve	No
Italian – English	Yes (software)
French	Yes (software)
German	No
Spanish	No
Automatic nutrunner configuration	No
Led (OK NOK RUN)	Yes
Number of Motors to manage (channels)	1

STORAGE

Results to be stored	No
OK /NOT OK cycles	-
Torque/angle/time values	-
General statistics	-

BASIC FUNCTIONS

Programs number	4 (+4)
Strategies number	5
OK NOT OK results	Yes
Error	Yes
Tightening sequence programming	Yes
Program instructions	Up to 50

ADVANCED FUNCTIONS

Number of screws for tightening sequence	1
Chart	No
Programming software	Yes
Diagnostics	Yes
Accessory release	Yes

TIGHTENING STRATEGIES

Screw feeding function	Yes
Torque	Yes
Torque/time	No
Torque /angle	Yes
Angle/ torque	Yes
Untightening	Yes

CONNECTIVITY

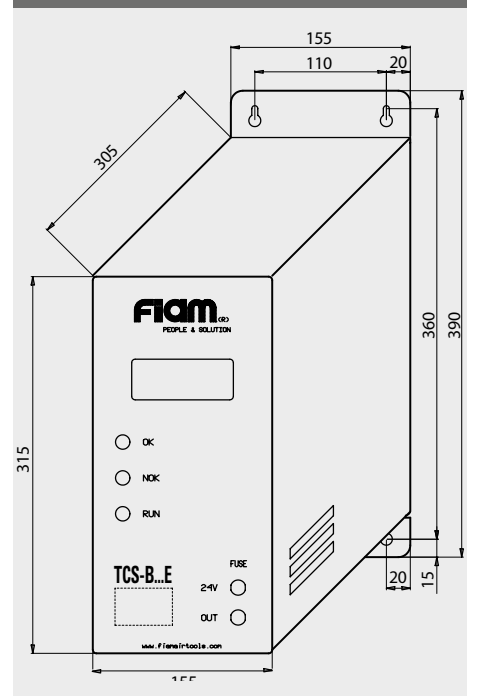
I/O (24 Vdc)	5+5
RS 232	Yes
Ethernet output	No
Fieldbus output	No
BAR Code	No

ACCESSORIES

Programming software	Included
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Feed and control unit TCS-B E

Dimensions (mm)



Voltage

- Voltage: 220-240 Volt, 50-60 Hz

Standard equipment (supplied with unit)

- Programming software TCS-B E
- Feed cable – 2m.
- RS232 serial output – 3 m.
- Quick guide
- Eco-friendly packaging
- Use and maintenance manual on CD

Models available upon request

- Addition of 4 more programs.
Code 686200904

High technology DC driven nutrunner

Brushless solutions for every need

- ➔ **High technology DC driven nutrunner motors (brushless)** don't need maintenance and thanks to absence of coal dust eliminate pollution in the working area
- ➔ **Built-in resolver/encoder:** they guarantee an elevated resolution in the angle measurement and therefore it assures an excellent tightening process control
- ➔ **Motor appropriate selection and accurate programming** (angle, torque, time etc...) reduce the need of post process controls with remarkable production benefits
- ➔ **Compact design, reduced dimensions and weights:** ideal with multi-spindle tightening units and robots
- ➔ Wide torque range: **from 0,5 up to 150 Nm**

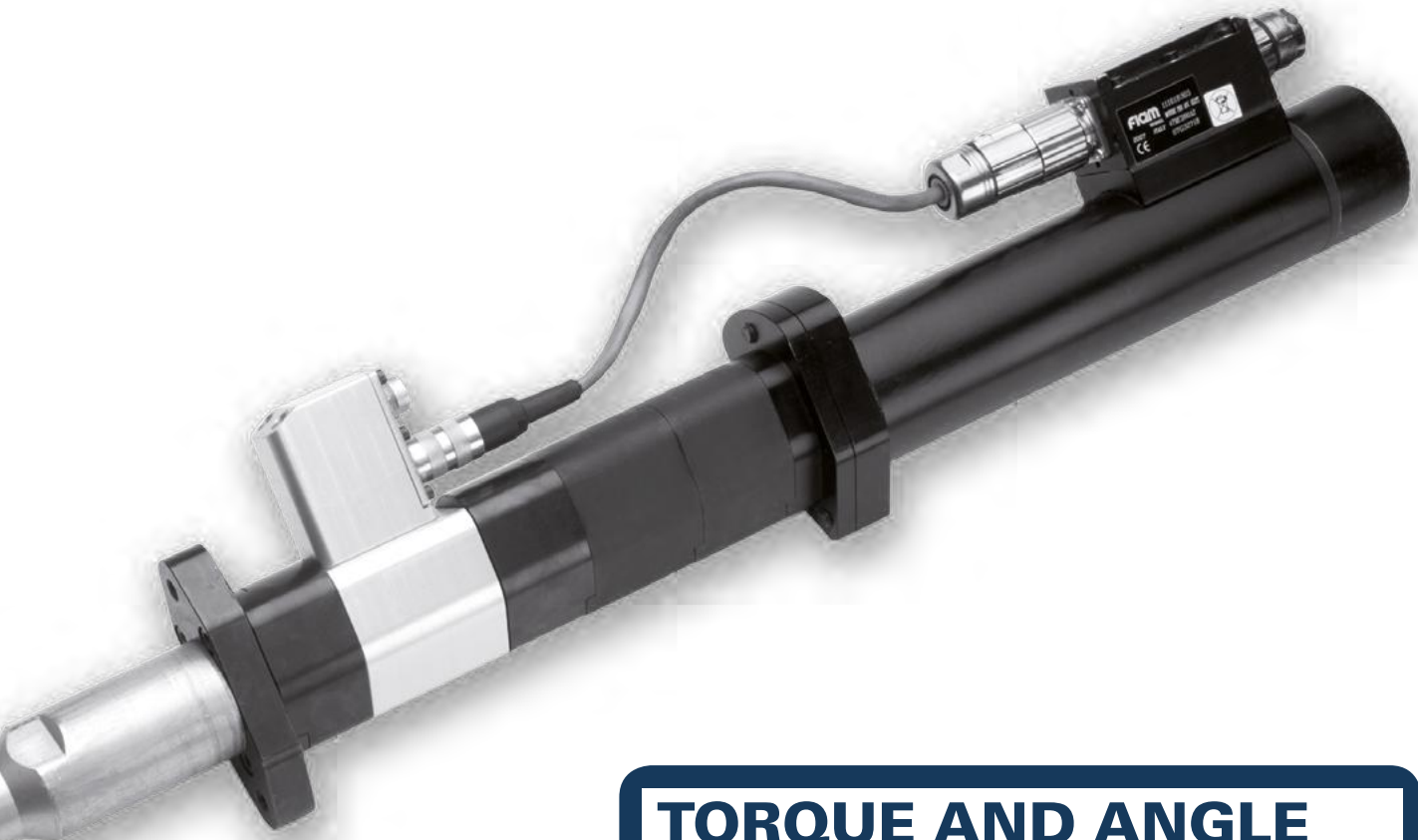
CURRENT CONTROL

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



CURRENT CONTROL DC DRIVEN NUTRUNNER MOTORS		RPM
15 MCB 05C1/2	1÷5	1700
15 MCB 10C1/2	2÷10	700
15 MCB 20C1/2	4÷20	350
25 MCB 20C1/2	4÷20	1500
25 MCB 35C1/2	7÷35	700
25 MCB 50C1/2	10÷50	500
50 MCB 45C1/2		1250
50 MCB 65C1/2	14÷65	600
50 MCB 90C1/2	18÷90	420
50 MCB 150C2	30÷150	320

Torque range: 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 150



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.

DC DRIVEN NUTRUNNER MOTORS WITH TORQUE AND ANGLE CONTROL		RPM
15 MCB 05A1/2	0,5+5	1700
15 MCB 10A1/2	1+10	700
15 MCB 20A1/2	2+20	350
25 MCB 20A1/2	2+20	1500
25 MCB 35A1/2	4+35	700
25 MCB 50A1/2	5+50	500
50 MCB 45A1/2	5+45	1250
50 MCB 65A1/2	7+65	600
50 MCB 90A1/2	9+90	420
50 MCB 150A2	30+150	320

Torque range 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 150

Current control



Type of brushless DC nutrunner motor		Recommended tightening torque		Idle speed	Reversibility	Weight		Accessories	Axial compensator bit stroke/load	Feed and control Unit to Use	Cables		
Model	Code	Nm	in lb	rpm	Type	Kg	lb	Drive	mm/N	Model	Code	Length	Code
15MCB05C1	111618201	1 ÷ 5	8.85 - 44.25	1700	↻	1,7	3.74	<input type="checkbox"/> 3/8"	-	TCS-B 15E	686200320		
15MCB05C2	111618206	1 ÷ 5	8.85 - 44.25	1700	↻	2	4.4	<input type="checkbox"/> 3/8"	20/35	TCS-B 15E	686200320	5 mt.	686200601
15MCB10C1	111618231	2 ÷ 10	17.7 - 88.5	700	↻	1,8	3.96	<input type="checkbox"/> 3/8"	-	TCS-B 15E	686200320	10 mt.	686200602
15MCB10C2	111618236	2 ÷ 10	17.7 - 88.5	700	↻	2,1	4.62	<input type="checkbox"/> 3/8"	20/35	TCS-B 15E	686200320		
15MCB20C1	111618261	4 ÷ 20	35.4 - 177	350	↻	1,8	3.96	<input type="checkbox"/> 3/8"	-	TCS-B 15E	686200320	15 mt.	686200603
15MCB20C2	111618266	4 ÷ 20	35.4 - 177	350	↻	2,1	4.62	<input type="checkbox"/> 3/8"	20/35	TCS-B 15E	686200320		
25MCB20C1	111618371	4 ÷ 20	35.4 - 177	1500	↻	4,7	10.34	<input type="checkbox"/> 3/8"	-	TCS-B 25E	686200325		
25MCB20C2	111618376	4 ÷ 20	35.4 - 177	1500	↻	5	11	<input type="checkbox"/> 3/8"	50/65	TCS-B 25E	686200325	5 mt.	686200607
25MCB35C1	111618381	7 ÷ 35	61.95 - 309.75	700	↻	4,7	10.34	<input type="checkbox"/> 1/2"	-	TCS-B 25E	686200325	10 mt.	686200608
25MCB35C2	111618386	7 ÷ 35	61.95 - 309.75	700	↻	5	11	<input type="checkbox"/> 1/2"	50/65	TCS-B 25E	686200325		
25MCB50C1	111618391	10 ÷ 50	88.5 - 442.5	500	↻	5,2	11.44	<input type="checkbox"/> 1/2"	-	TCS-B 25E	686200325	15 mt.	686200609
25MCB50C2	111618396	10 ÷ 50	88.5 - 442.5	500	↻	5,5	12.1	<input type="checkbox"/> 1/2"	50/65	TCS-B 25E	686200325		
50MCB45C1	111618401	10 ÷ 45	88.5 - 398.25	1250	↻	7	15.4	<input type="checkbox"/> 1/2"	-	TCS-B 50E	686200330		
50MCB45C2	111618406	10 ÷ 45	88.5 - 398.25	1250	↻	7,3	16.06	<input type="checkbox"/> 1/2"	50/65	TCS-B 50E	686200330	5 mt.	686200607
50MCB65C1	111618411	14 ÷ 65	123.9 - 575.25	600	↻	7	15.4	<input type="checkbox"/> 1/2"	-	TCS-B 50E	686200330	10 mt.	686200608
50MCB65C2	111618416	14 ÷ 65	123.9 - 575.25	600	↻	7,3	16.06	<input type="checkbox"/> 1/2"	50/65	TCS-B 50E	686200330		
50MCB90C1	111618421	18 ÷ 90	159.3 - 796.5	420	↻	7	15.4	<input type="checkbox"/> 1/2"	-	TCS-B 50E	686200330	15 mt.	686200609
50MCB90C2	111618426	18 ÷ 90	159.3 - 796.5	420	↻	7,3	16.06	<input type="checkbox"/> 1/2"	50/65	TCS-B 50E	686200330		
50MCB150C2	111618456	30÷150	265.5 - 1327.5	320	↻	7	15.4	<input type="checkbox"/> 1/2"	50	TCS-B 50E	686200330		

Legend

15 = Power of the motor/10 • MC = Nutrunner motor • B = Electronic brushless • 05 = Maximum torque in Nm • C = Current control • 1 = Output with square drive without axial compensator • 2 = Output with square drive with axial compensator

Legend

Reversibility: All models are suitable for tightening and untightening operation

- Noise level has been measured in accordance with ISO 3744 and ISO 15744 standards (inf. to 72 dBA).
- Accessory drive: male square drive in accordance with ISO 1174-1.
- The code number must be used when ordering.

Torque values refer to analysis of laboratory performing tests that comply with the standard ISO 5393 with screwdriver set at to the maximum speed and should be considered as indicative. The values in real applications can be influenced by many factors such as, for example: joint (type of joint, degree of elasticity), screw (type and length), accessory used (type or length of the blade), tightening strategy set. For any further details, please address to Fiam Technical Service.

Standard equipment (supplied with motor)

- Axial compensator (where indicated: see chart)
- Flange bracket to fix the motor
- Test certificate
- Use and maintenance manual
- Eco-friendly packaging

15MCB models use Hall sensors to read the angle value. The 25 and 50 MCB models are equipped with a built-in angle transducer (resolver) that guarantees an elevated resolution in the angle measurement.

Models available upon request

- Models with Off Set device (to be used for motors up to 8 Nm) (for narrow distances between the axis) Cod. 680601185
- Models with F 3/8" - F 1/4" quick change chuck: Cod. 654141010
- Models with modified flange and/or with customized body design
- Models with angle head
- Models with Off Set device with axial compensator Cod. 680601190



OFF SET DEVICE



OFF SET DEVICE WITH AXIAL COMPENSATOR

Accessoires disponibles sur demande

- External storage kit for TCS-B E. Code 686001005
- Addition of 4 more programs for TCS-B E. Code 686200904

Torque and angle control



Type of brushless DC driven nutrunner motor		Recommended tightening torque		Idle speed	Reversibility	Weight		Accessories	Axial compensator bit stroke/load	Feed and control Unit to use	Cables		
Model	Code	Nm	in lb	rpm	Type	Kg	lb	Drive	mm/N	Model	Code	Length	Code
15MCB05A1	111618216	0,5 ÷ 5	4.43 - 44.25	1700		2,3	5.06	<input type="checkbox"/> 3/8"	-	TCS-B 15E	686200320		
15MCB05A2	111618221	0,5 ÷ 5	4.43 - 44.25	1700		2,6	5.72	<input type="checkbox"/> 3/8"	20/35	TCS-B 15E	686200320	5 mt.	686200611
15MCB10A1	111618246	1 ÷ 10	8.85 - 88.5	700		2,4	5.28	<input type="checkbox"/> 3/8"	-	TCS-B 15E	686200320	10 mt.	686200612
15MCB10A2	111618251	1 ÷ 10	8.85 - 88.5	700		2,7	5.94	<input type="checkbox"/> 3/8"	20/35	TCS-B 15E	686200320		
15MCB20A1	111618276	2 ÷ 20	17.7 - 177	350		2,4	5.28	<input type="checkbox"/> 3/8"	-	TCS-B 15E	686200320	15 mt.	686200613
15MCB20A2	111618281	2 ÷ 20	17.7 - 177	350		2,7	5.94	<input type="checkbox"/> 3/8"	20/35	TCS-B 15E	686200320		
25MCB20A1	111618311	2 ÷ 20	17.7 - 177	1500		4,7	10.34	<input type="checkbox"/> 3/8"	-	TCS-B 25E	686200325		
25MCB20A2	111618316	2 ÷ 20	17.7 - 177	1500		5	11	<input type="checkbox"/> 3/8"	50/65	TCS-B 25E	686200325	5 mt.	686200607
25MCB35A1	111618321	4 ÷ 35	35.4 - 309.75	700		4,7	10.34	<input type="checkbox"/> 1/2"	-	TCS-B 25E	686200325	10 mt.	686200608
25MCB35A2	111618326	4 ÷ 35	35.4 - 309.75	700		5	11	<input type="checkbox"/> 1/2"	50/65	TCS-B 25E	686200325		
25MCB50A1	111618331	5 ÷ 50	44.25 - 442.5	500		5,2	11.44	<input type="checkbox"/> 1/2"	-	TCS-B 25E	686200325	15 mt.	686200609
25MCB50A2	111618336	5 ÷ 50	44.25 - 442.5	500		5,5	12.1	<input type="checkbox"/> 1/2"	50/65	TCS-B 25E	686200325		
50MCB45A1	111618341	5 ÷ 45	44.25 - 398.25	1250		7	15.4	<input type="checkbox"/> 1/2"	-	TCS-B 50E	686200330		
50MCB45A2	111618346	5 ÷ 45	44.25 - 398.25	1250		7,3	16.06	<input type="checkbox"/> 1/2"	50/65	TCS-B 50E	686200330	5 mt.	686200607
50MCB65A1	111618351	7 ÷ 65	61.95 - 575.25	600		7	15.4	<input type="checkbox"/> 1/2"	-	TCS-B 50E	686200330	10 mt.	686200608
50MCB65A2	111618356	7 ÷ 65	61.95 - 575.25	600		7,3	16.06	<input type="checkbox"/> 1/2"	50/65	TCS-B 50E	686200330		
50MCB90A1	111618361	9 ÷ 90	79.65 - 796.5	420		7	15.4	<input type="checkbox"/> 1/2"	-	TCS-B 50E	686200330	15 mt.	686200609
50MCB90A2	111618366	9 ÷ 90	79.65 - 796.5	420		7,3	16.06	<input type="checkbox"/> 1/2"	50/65	TCS-B 50E	686200330		
50MCB150A2	111618455	30÷150	265.5- 1327.5	320		7	15.4	<input type="checkbox"/> 1/2"	50	TCS-B 50E	686200330		

Legend

15 = Power of the motor/10 • MC = Nutrunner motor • B = Electronic brushless • 05 = Maximum torque in Nm • C = Current control • 1 = Output with square drive without axial compensator • 2 = Output with square drive with axial compensator

Legend

Reversibility: All models are suitable for tightening and untightening operation

- Noise level has been measured in accordance with ISO 3744 and ISO 15744 standards (inf. to 72 dBA).
- Accessory drive: male square drive in accordance with ISO 1174-1.
- The code number must be used when ordering.

Torque values refer to analysis of laboratory performing tests that comply with the standard ISO 5393 with screwdriver set at to the maximum speed and should be considered as indicative. The values in real applications can be influenced by many factors such as, for example: joint (type of joint, degree of elasticity), screw (type and length), accessory used (type or length of the blade), tightening strategy set. For any further details, please address to Fiam Technical Service.

Standard equipment (supplied with motor)

- Axial compensator (where indicated: see chart)
- Flange bracket to fix the motor
- Test certificate
- Use and maintenance manual
- Eco-friendly packaging

15MCB models use Hall sensors to read the angle value. The 25 and 50 MCB models are equipped with a built-in angle transducer (resolver) that guarantees an elevated resolution in the angle measurement.

Models available upon request

- Models with Off Set device (to be used for motors up to 8 Nm) (for narrow distances between the axis) Cod. 680601185
- Models with F 3/8" - F 1/4" quick change chuck: Cod. 654141010
- Models with modified flange and/or with customized body design
- Models with angle head
- Models with Off Set device with axial compensator Cod. 680601190

Accessoires disponibles sur demande

- External storage kit for TCS-B E. Code 686001005
- Addition of 4 more programs for TCS-B E. Code 686200904



OFF SET DEVICE

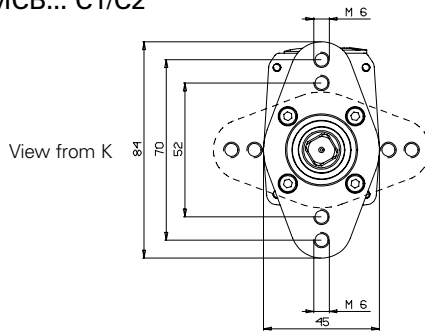


OFF SET DEVICE WITH AXIAL COMPENSATOR

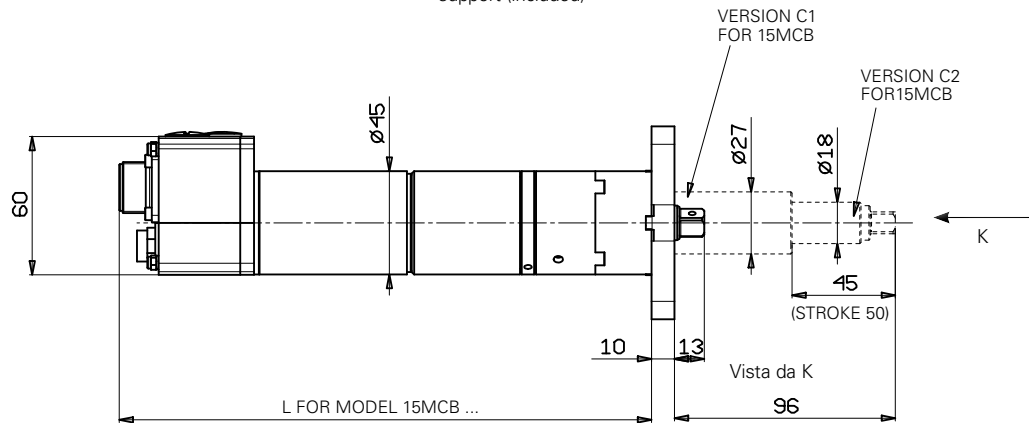
Overall dimensions (mm) of current control DC

DC driven nutrunner motors 15MCB... C1/C2

Model	L	Drive
15MCB05C1	232	3/8"
15MCB05C2	244	3/8"
15MCB10C1	256	3/8"
15MCB10C2	267	3/8"
15MCB20C1	256	3/8"
15MCB20C2	267	3/8"

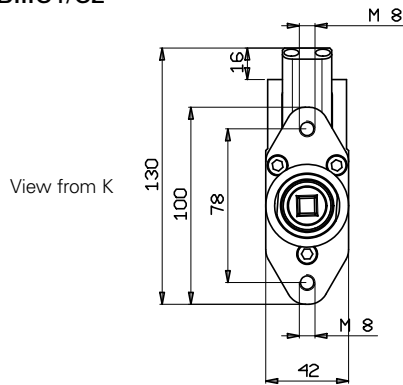


Flange bracket to fix the motor to the support (included)

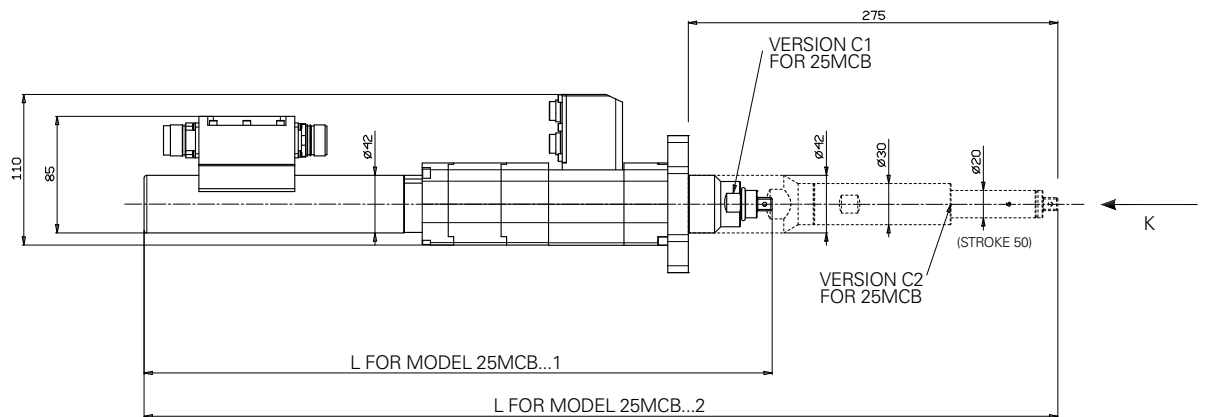


DC driven nutrunner motors 25MCB...C1/C2

Model	L	Drive
25MCB20C1	458	3/8"
25MCB20C2	667	3/8"
25MCB35C1	508	1/2"
25MCB35C2	716	1/2"
25MCB50C1	508	1/2"
25MCB50C2	716	1/2"



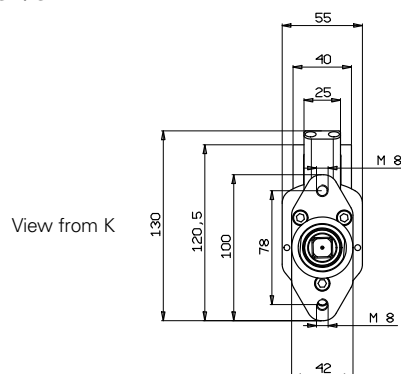
Flange bracket to fix the motor to the support (included)



driven nutrunner motors

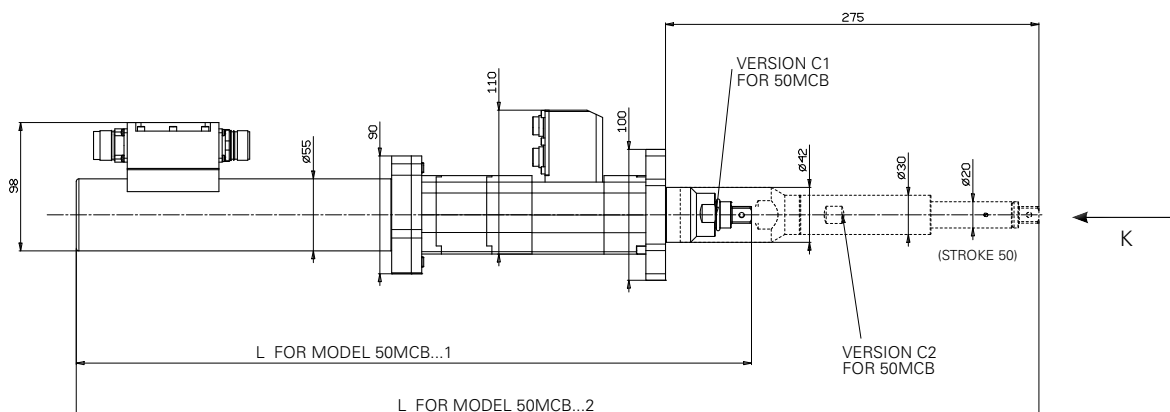
DC driven nutrunner motors 50MCB...C1/C2

Model	L	Drive
50MCB45C1	516	1/2"
50MCB45C2	731	1/2"
50MCB65C1	561	1/2"
50MCB65C2	769	1/2"
50MCB90C1	561	1/2"
50MCB90C2	769	1/2"
50MCB150C2	594	1/2"

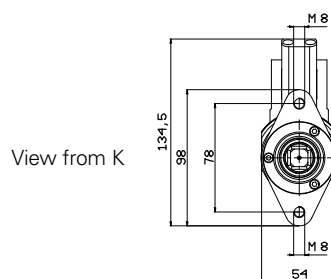


View from K

Flange bracket to fix the motor to the support (included)

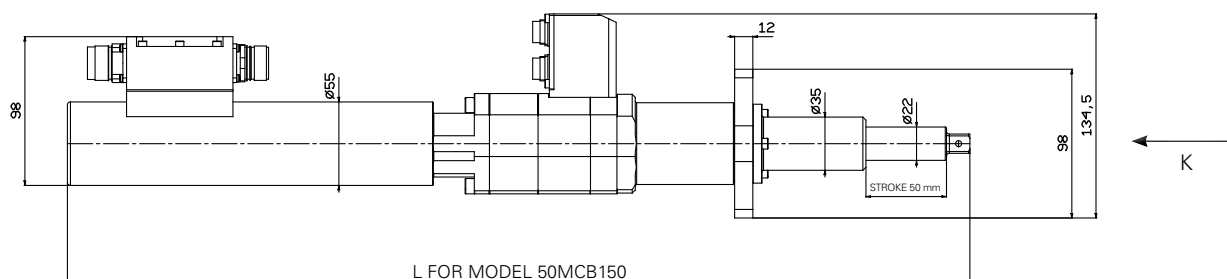


DC driven nutrunner motors 50MCB150C2



View from K

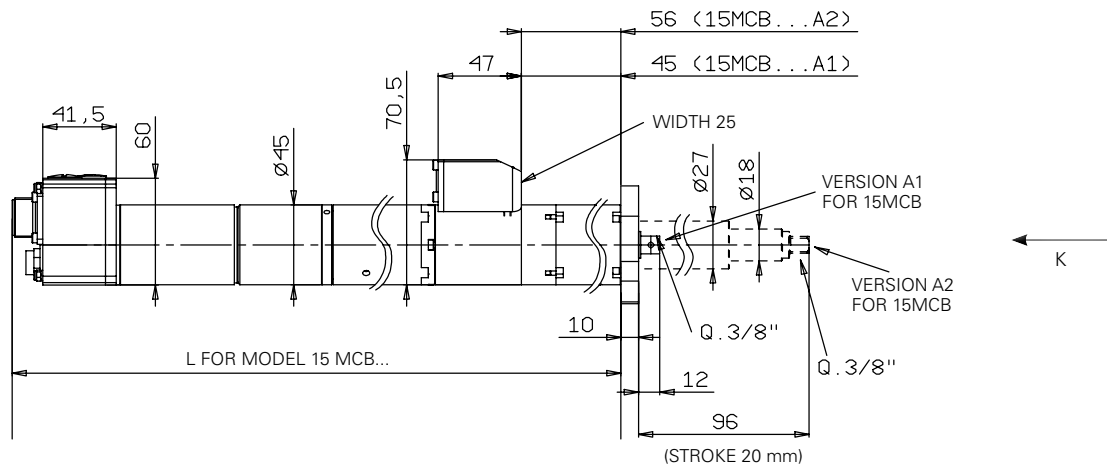
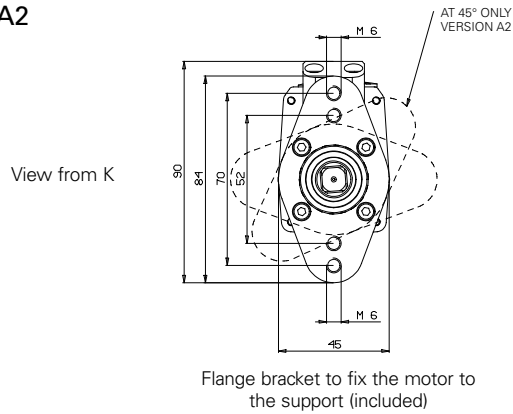
Flange bracket to fix the motor to the support (included)



Overall dimensions (mm) of DC driven nutrunner

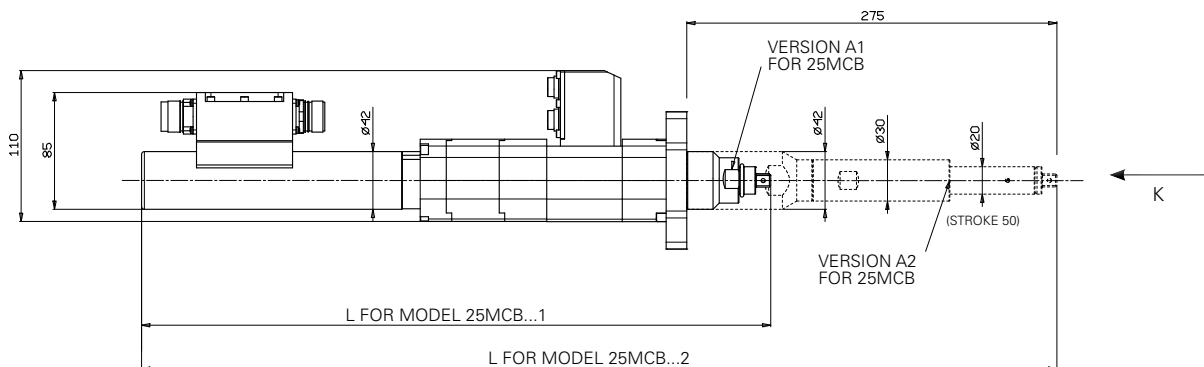
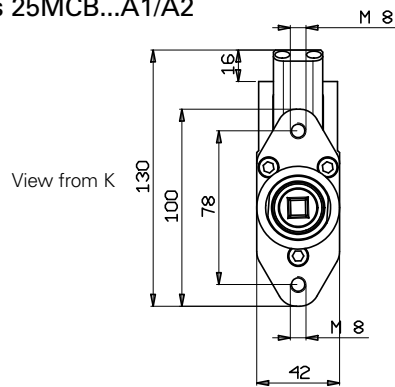
DC driven nutrunner motors 15MCB...A1/A2

Model	L	Drive
15MCB05A1	309	3/8"
15MCB05A2	320	3/8"
15MCB10A1	332	3/8"
15MCB10A2	343	3/8"
15MCB20A1	332	3/8"
15MCB20A2	343	3/8"



DC driven nutrunner motors 25MCB...A1/A2

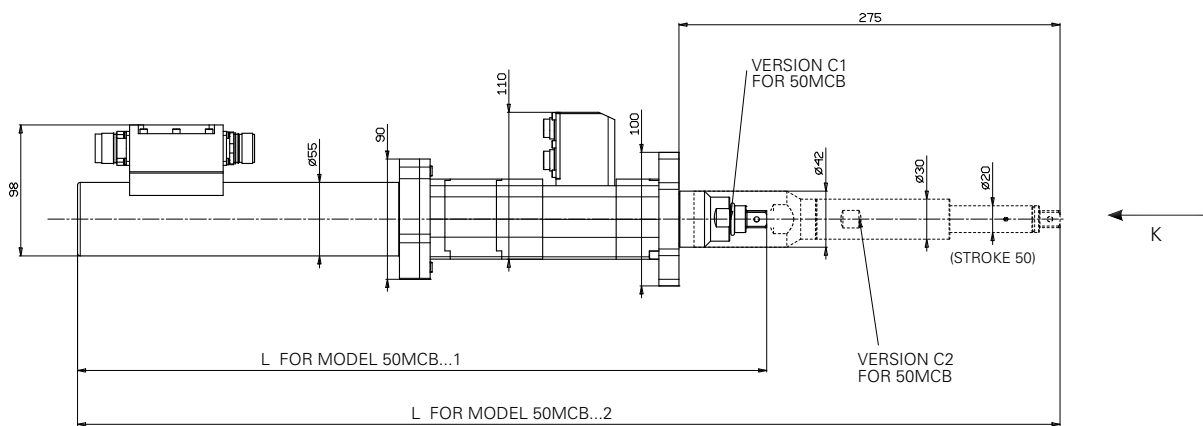
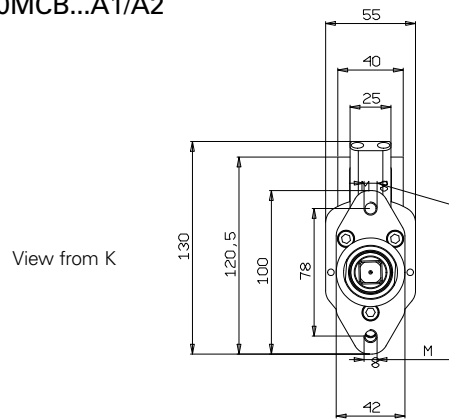
Model	L	Drive
25MCB20A1	458	3/8"
25MCB20A2	667	3/8"
25MCB35A1	508	1/2"
25MCB35A2	716	1/2"
25MCB50A1	508	1/2"
25MCB50A2	716	1/2"



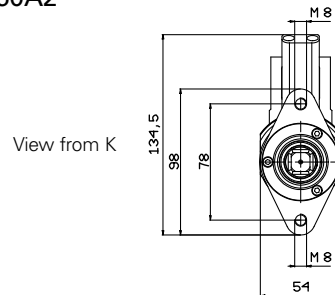
motors with torque and angle control

DC driven nutrunner motors 50MCB...A1/A2

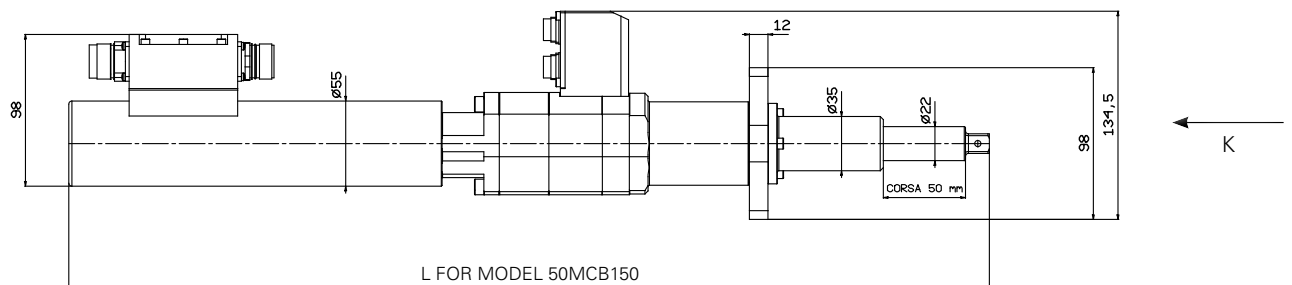
Model	L	Drive
50MCB45A1	516	1/2"
50MCB45A2	731	1/2"
50MCB65A1	561	1/2"
50MCB65A2	769	1/2"
50MCB90A1	561	1/2"
50MCB90A2	769	1/2"
50MCB150A2	594	1/2"



DC driven nutrunner motors 50MCB150A2



Flange bracket to fix the motor to the support (included)



Accessories

FASTENING SLIDES

Running on ball recirculating runners:	with dovetail, size 15/20 mm
Magnetic cylinders:	(cylinder bore \varnothing 20 mm, upon request \varnothing 25 mm)
Pneumatic decelerators:	✓
Limit switch position sensors:	✓
Air flow governors:	✓
Max possible nutrunner motor diameter:	42,5 mm
Fastening slides can be equipped with precision sensor (with the possibility to define the accuracy of reading range):	✓
Weight (slide only):	1,8 ÷ 2,2 Kg

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.

Their movement ensures a **perfect approach stroke of the nutrunner motor/screw-retaining head** to the part being assembled.

Also suitable for applications with **several tightening points with very close centre-to-centre distances** (min. 41 mm for SL15 models.

min. 51 mm for SL 20 models).

On request, **Off Set devices** are available that can reach tightening points having a centre-to-centre distance of approx. 20 mm. Due to their compact dimensions and extremely low weight, fastening slides are extremely versatile and **can be used on manipulators, electronic axes and robots** with air, electric or hi tech DC nutrunner motors.

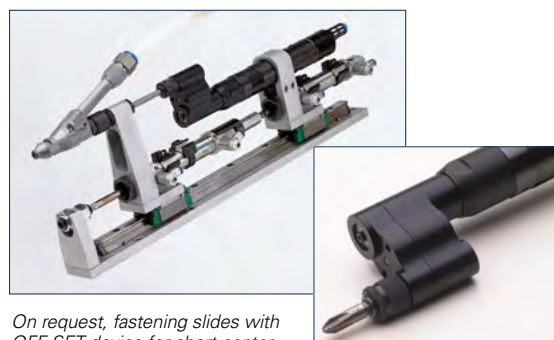
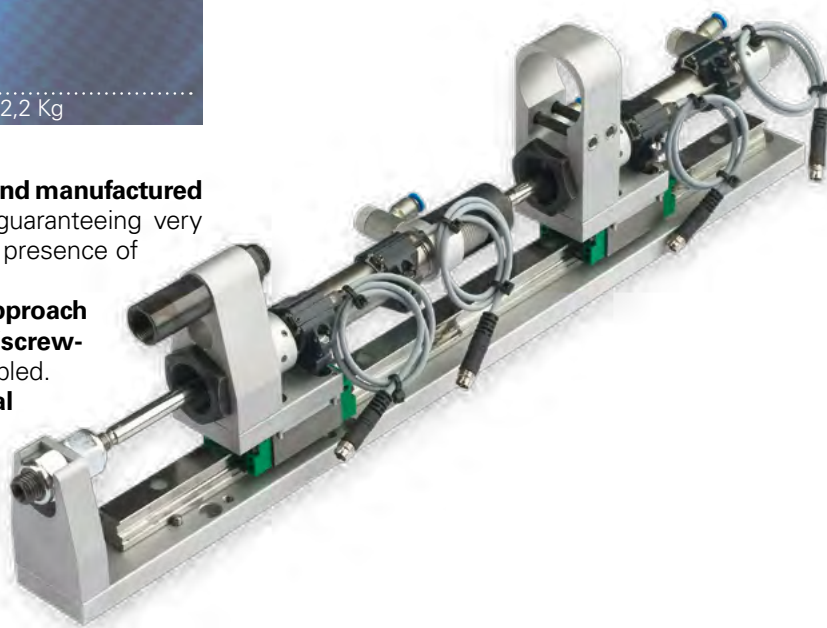
Numerous available models allow **the installation of nutrunner motors of different sizes and are suitable for applications where high axial thrust is required (e.g. in assemblies with self-tapping screws).**

SINGLE STROKE-FASTENING SLIDE runs only the movement performed by the motor in order to reach the tightening point and tighten.

DUAL STROKE FASTENING SLIDES besides the motor stroke to effect tightening, runs also have an additional approaching stroke of the head to the component.

TRIPLE-STROKE FASTENING SLIDES are equipped with an additional anti-overturning device which handles screws having a ratio total length/head diameter more or less to 1 ($1,1 < H/D < 1,5$).

For further details about fastening slides and the available sizes refer to the [Catalogue 73 - Automatic tightening modules.](#)



On request, fastening slides with OFF SET device for short center distances.

Automatic screw feeding systems for maximum efficiency of the cycles

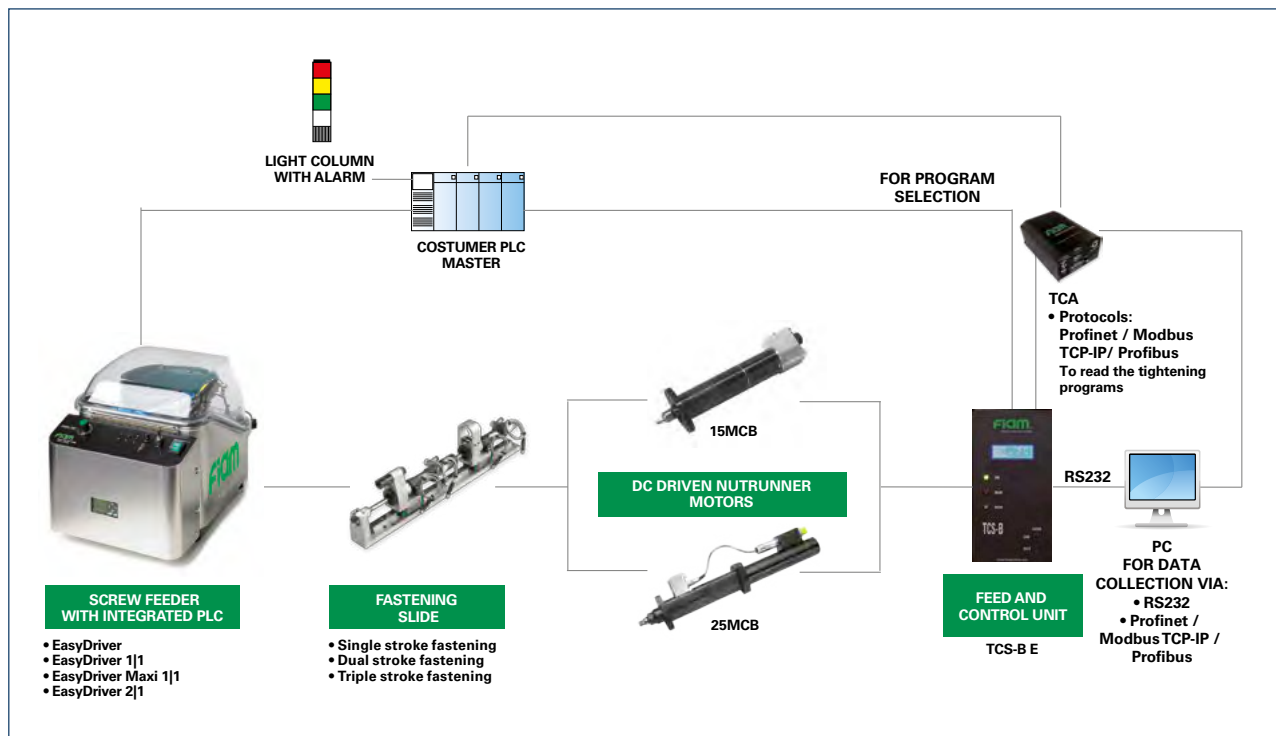
All Fiam high tech DC driven nutrunner motors can be installed on automatic screw feeding tightening modules **EasyDriver MCA**.

Scope of the solution:

- Feeder EasyDriver
- Fastening slide
- Air, electric or hi tech DC nutrunner motor.



Discover how it works!



FEEDER *EasyDriver*

Screw feeder EasyDriver: controls machine parameters, allows integration with automatic solutions, controls input signals: fastening start, reset, emergency, controls output and input signals.

Soundproof transparent cover

for a better view of the inside without having to open the machine

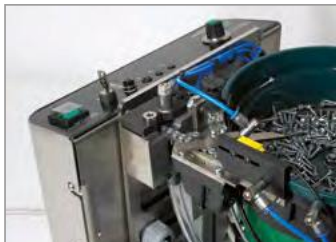
High capacity vibrating bowl

for improved working autonomy; coated with anti-wear material



High frequency screw selector

customized on specific screw sample, guaranteeing high selection reliability at tight cycle time



"Overload" photocell

it makes sure no screw gets stuck in the selection duct guaranteeing high and uninterrupted production



INTEGRATED PLC

It manages input signals - tightening start, fault reset, emergencies. It provides output signals - fault, tightening result. It interfaces with indicator and monitoring devices (LED, workpiece counters, light towers) in order to immediately monitor and diagnose the production cycle.

LED lights

to monitor the various phases of the working cycle



Screw shooting in a closed chamber

it increases the speed of the screw along its path and consequently the productive process optimizing the use of compressed air



Functional keypad

it adjusts easily and directly the machine parameters



Stainless steel structure

it guarantees long lifetime

Filter, regulator and lubrication group

with air pressure gauge. It filters the inlet air and assures constant machine feed, while guaranteeing suitable tool lubrication



Tightening mode selection

- torque and depth control, or
- depth control



External structure

of small dimensions, which can be dismantled easily for maintenance

EasyDriver Screw feeding system



Standard version, feeds the screws optimally and without jamming.

Bowl: Circular, 240 mm in Ø
Screws: For screws between 10 and 35 mm in length
Key: standard version, 1 x 240mm Ø bowl feeds a slide/spindle

Upon request: **basic structure to support the feeder**, equipped with aluminum base plate already prepared with the holes that allow to fix the suitable feeder on it.

With aluminum profiles with channels for cables and tube bundles inside the slots positioned under the support surface, is available with support adjustable feet in height even for floor fixing or with wheels.

Can be combined with the 5 or 10 Lt **hopper module** to be joined to the structure that must be equipped in this case of fixed feet.

EasyDriver 1|1 Screw feeding system



Used when the job calls for powerful air screwdrivers that entail the use of larger FRL units.

Bowl: Circular, 240 mm in Ø
Screws: For screws between 10 and 35 mm in length
Key: 1|1 = 1 240mm Ø bowl feeds 1 slide/spindle

Upon request: **basic structure to support the feeder**, equipped with aluminum base plate already prepared with the holes that allow to fix the suitable feeder on it.

With aluminum profiles with channels for cables and tube bundles inside the slots positioned under the support surface, is available with support adjustable feet in height even for floor fixing or with wheels.

Can be combined with the 5 or 10 Lt **hopper module** to be joined to the structure that must be equipped in this case of fixed feet.

EasyDriver MAXI 1|1 Screw feeding system



Used when the job involves large screws and also in the event of high production rates to allow the system to run unaided for longer, even when working with small screws.

Bowl: Circular, 420 mm in Ø
Screws: For screws between 35 and 60 mm in length
Key: MAXI 1|1 = 1 420mm Ø bowl feeds 1 slide/spindle

Upon request: **MAXI structure to support the feeder**, equipped with aluminum base plate already prepared with the holes that allow to fix the suitable feeder on it.

With aluminum profiles with channels for cables and tube bundles inside the slots positioned under the support surface, is available with support adjustable feet in height even for floor fixing.

Can be combined with the 10 or 50 Lt **hopper module** to be joined to the structure that must be equipped in this case of fixed feet.

EasyDriver 2|1 Screw feeding system



With its dual circular bowls, it can process **2 geometrically similar screws**, for example differing in length or made from different materials (e.g. stainless steel / browned steel) to feed a slide (one way).

Screw choice is managed by the feeder's PLC through a selector or by an external signal.

Bowl: 2 circular bowls, 240 mm in Ø
Screws: For screws between 10 and 35 mm in length
Key: 2|1 = 2 240mm Ø bowls feed 1 slide/spindle

Upon request: **structure to support the feeder**, equipped with aluminum base plate already prepared with the holes that allow to fix the suitable feeder on it. With aluminum profiles with channels for cables and tube bundles inside the slots positioned under the support surface, is available with support adjustable feet in height even for floor fixing or with wheels.

EasyDriver 1|2 Screw feeding system



Designed to feed two single- or dual-stroke slides, fitted with air nutrunner motor.

The work cycle involves selecting and shooting 2 screws at the same time.

Bowl: Circular, 240 mm in Ø
Screws: For screws between 10 and 35 mm in length
Key: 1|2 = 1 240mm Ø bowl feeds 2 slides/spindles

Upon request: **basic structure to support the feeder**, equipped with aluminum base plate already prepared with the holes that allow to fix the suitable feeder on it.

With aluminum profiles with channels for cables and tube bundles inside the slots positioned under the support surface, is available with support adjustable feet in height even for floor fixing or with wheels.

Can be combined with the 5 or 10 Lt **hopper module** to be joined to the structure that must be equipped in this case of fixed feet.

EasyDriver MAXI 1|2 Screw feeding system



Used when the job involves large screws and there is the need to feed two single- or dual-stroke slides, fitted with air nutrunner motor.

Also used in the event of high production rates to allow the system to run unaided for longer, even when working with small screws.

The work cycle involves selecting and shooting 2 screws at the same time.

Bowl: Circular, 420 mm in Ø
Screws: For screws between 35 and 60 mm in length
Key: MAXI 1|2 = 1 420mm Ø bowl feeds 2 slides/spindles

Upon request: **MAXI structure to support the feeder**, equipped with aluminum base plate already prepared with the holes that allow to fix the suitable feeder on it.

With aluminum profiles with channels for cables and tube bundles inside the slots positioned under the support surface, is available with support adjustable feet in height even for floor fixing.

Can be combined with the 10 or 50 Lt **hopper module** to be joined to the structure that must be equipped in this case of fixed feet.

To choose your tightening solutions, read the following catalogues online

☞ Components for tightening automation



☞ **MCA**
Tightening module to be integrated into automatic production systems



☞ Air nutrunner motors

www.fiamgroup.com