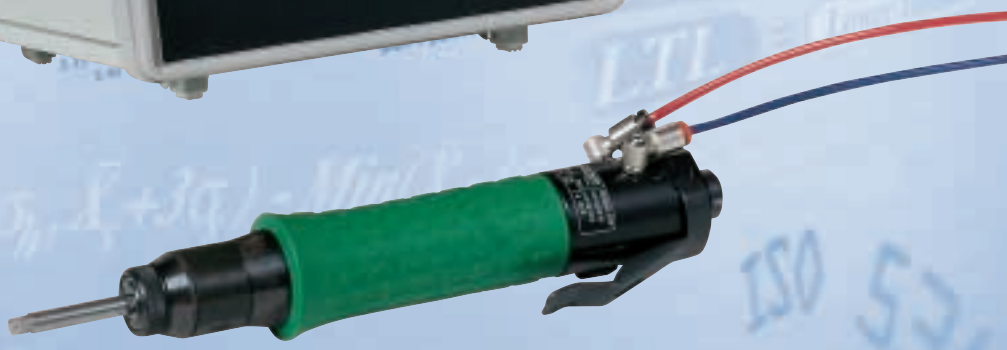
Air screwdrivers & nutrunners



Tightening system

with computerised end-of-cycle monitoring

comprising:

- **Air screwdrivers** featuring the Jointech-Plus torque control system (with immediate automatic air shut-off) and pneumatic signal pick-up
  - Straight, pistol and angle grips
- **Computerised control unit**

(Tightening Operations Control System - Pressure Control)

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Tightening system with computerised end-of-cycl

Tighten and controlling

In order to guarantee the final quality of a product, one of the necessary steps is to check the assembly process, in which tightening is often the principal operation. This is why the **regularity of the tightening cycle must be ascertained with precise and reliable systems**, especially when operating in conformity with ISO 9000.
Fiam has therefore developed a practical and competitively priced solution to

ensure the regularity of the tightening process, the maximum quality of the finished product and the reduction of production waste.

The system comprises air screwdrivers with automatic air shut-off (featuring a pneumatic signal pick-up system) and a TOCS-PC (Tightening Operations Control System-Pressure Control) computerised control unit which **monitors the tightening cycle by picking up the pressure signal.**
The signal from the screwdriver **is converted into an electric signal and processed** by the control unit which picks up and signals successful (OK) tightening cycles or unsuccessful (KO) tightening cycles.
KO cycle signals may be caused by:
- screw already tightened;
- screw partially tightened;
- screw stuck or out-of-thread, etc.

This saves the operator **the task of checking that each piece** is successfully tightened, as the unit will signal any non-conformities, also with the help of the signal light column.
The unit also allows the number of screws per sequence to be programmed.

Layout example:
CSE 8 LRA -2 CS air screwdriver, TOCS -PC computerised control unit and OK/KO signal light column.

AD26RA-2CS

CY11PRA-WP-2CS

CZE4PARAS-2CS

Two ports for picking up the dual pressure signal

CSE8LRA-2CS

CY9RA-WP-2CS

CSE10PRA-2CS

QUALITY OF THE TIGHTENING CYCLE

Fiam air screwdrivers are **excellent, proven tools that are highly successful in the world market**. They are widely used in assembling components in various sectors, including the electronics industry, household appliances and car components.
The **elevated quality of the tightening process** is achieved by the torque control system of the screwdrivers which allows **high torque repeatability standards both on single joints** (CM/CMK≥ 1.67) **and on different joints** (low MEAN SHIFT), the latter being a frequent event in all industrial tightening processes. The Fiam air screwdrivers used for these tightening systems feature **two "ports" for picking up a dual pressure signal**. This ensures totally reliable results.

Fiam screwdrivers are designed for use with either lubricated or unlubricated compressed air.

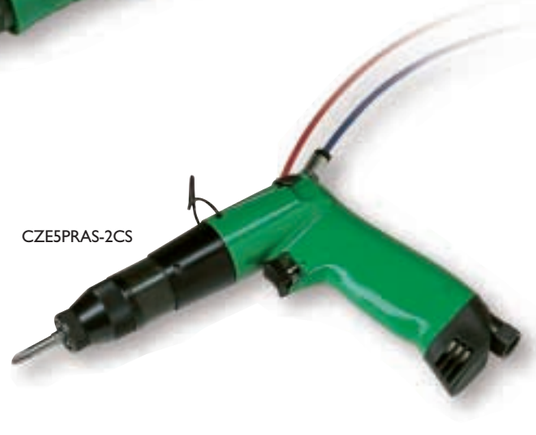
ERGONOMICS

Fiam air screwdrivers are the ergonomically correct answer to safety rules: as well as being **extremely well-balanced and light**, which means less operator fatigue and higher productivity, they also feature **low noise and vibration levels of less than 1 m/sec²** (measured according to ISO 8662.7); this aspect is extremely important for complying with legal requirements.

ERGOTECH

CSE8PARA-2CS

CZE5LRA-2CS



CZE5PRAS-2CS

Fiam

e monitoring

TYPE OF SCREWDRIVER		GRIP	TIGHTENING TORQUE		IDLE SPEED	STARTING SYSTEM	REVERSIBILITY	WEIGHT	DIMENSIONS	AIR CONSUMPTION	ACCESSORIES	NOISE LEVEL	VIBRATION LEVEL
Model	**Code**	**Type**	**Hard Joint Nm**	**Soft Joint Nm**	**r.p.m.**	**Type**	**Type**	**kg**	**Ø x l x h**	**l/s**	**Drive**	**dBA**	**m/sec²**
CZE3LRA-2CS	112509523		1÷3	0,8÷25	1300			0,650	31x242	5,5	F 1/4"	< 70	< 1
CZE4LRA-2CS	112509524		0,7÷3,6	0,6÷3,5	900			0,650	31x242	5,5	F 1/4"	< 70	< 1
CZE5LRA-2CS	112509471		0,7÷5	0,6÷5	550			0,650	31x242	5,5	F 1/4"	< 70	< 1
CSE5LRA-2CS	114809643		2,5÷5	2,5÷5	1500			0,870	40x245	8	F 1/4"	77	< 1
CSE8LRA-2CS	114809554		2,5÷8	2,5÷8	1000			0,870	40x245	8	F 1/4"	77	< 1
CSE10LRA-2CS	114809555		2,5÷10	2,5÷10	500			0,870	40x245	8	F 1/4"	77	< 1
CY9RA-WP-2CS	116509097		7÷16		700			1,670	46x345	10	F 1/4"	80	< 1
CY11RA-WP-2CS	116509108		7÷24		450			1,670	46x345	10	F 1/4"	80	< 1
CZE3PRAS-2CS	112509605		0,5÷2,0*	0,5÷2,0*	1300			0,750	32x200x155	6	F 1/4"	70	< 1
CZE4PRAS-2CS	112509606		0,5÷3,0*	0,5÷3,0*	900			0,750	32x200x155	6	F 1/4"	70	< 1
CZE5PRAS-2CS	112509607		0,5÷4,0*	0,5÷4,0*	600			0,750	32x200x155	6	F 1/4"	70	< 1
CZE3PARAS-2CS	112509608		0,5÷2,0*	0,5÷2,0*	1300			0,700	32x168x155	6	F 1/4"	70	< 1
CZE4PARAS-2CS	112509609		0,5÷3,0*	0,5÷3,0*	900			0,700	32x168x155	6	F 1/4"	70	< 1
CZE5PARAS-2CS	112509610		0,5÷4,0*	0,5÷4,0*	600			0,700	32x168x155	6	F 1/4"	70	< 1
CSE5PRA-2CS	114809916		2,5÷5	2,5÷5	1500			1,100	38x245x155	8	F 1/4"	74	< 1
CSE8PRA-2CS	114809738		2,5÷8	2,5÷8	1000			1,100	38x245x155	8	F 1/4"	74	< 1
CSE10PRA-2CS	114809739		2,5÷10	2,5÷10	500			1,100	38x245x155	8	F 1/4"	74	< 1
CSE5PARA-2CS	114809917		2,5÷5	2,5÷5	1500			1,100	38x210x160	8	F 1/4"	77	< 1
CSE8PARA-2CS	114809918		2,5÷8	2,5÷8	1000			1,100	38x210x160	8	F 1/4"	76	< 1
CSE10PARA-2CS	114809919		2,5÷10	2,5÷10	500			1,100	38x210x160	8	F 1/4"	76	< 1
CY9PRA-WP-2CS	116509153		7÷16		700			1,750	46x265x175	10	F 1/4"	80	< 1
CY11PRA-WP-2CS	116509154		7÷24		450			1,750	46x265x175	10	F 1/4"	80	< 1
AZ3RA30-2CS	112509602		1÷3	0,8÷2,5	1300			0,700	32x305	5	M 1/4"	70	< 1
AZ4RA30-2CS	112509603		1÷3,5	1÷3	900			0,700	32x305	5	M 1/4"	70	< 1
AZ5RA30-2CS	112509604		1÷4,8	1÷3,5	600			0,700	32x305	5	M 1/4"	70	< 1
AZ3RA90-2CS	112509600		1÷3	0,8÷2,5	1300			0,700	32x298	5	M 1/4"	70	< 1
AZ4RA90-2CS	112509601		1÷3,5	1÷3	900			0,700	32x298	5	M 1/4"	70	< 1
AZ5RA90-2CS	112509536		1÷4,8	1÷3,5	600			0,700	32x298	5	M 1/4"	70	< 1
AD6RA-2CS	114809912		2÷5,5*	2÷6*	1150			1,200	40x304	11	M 3/8"	78	< 1
AD9RA-2CS	114809913		2÷9*	2÷9*	900			1,200	40x304	11	M 3/8"	78	< 1
AD12RA-2CS	114809860		4÷10*	4÷12*	600			1,400	40x334	11	M 3/8"	78	< 1
AD18RA-2CS	114809792		7÷15*	8÷18*	350			1,450	40x331	11	M 3/8"	78	< 1
AD26RA-2CS	114809793		13,5÷23,5*	14,5÷26*	350			1,450	40x331	11	M 3/8"	78	< 1
AG40RA-2CS	114809914		17,5÷36*	18÷40*	400			2,050	40x419	13	M 3/8"	80	< 1
AG60RA-2CS	114809915		26÷52*	29÷60*	300			2,300	40x438	13	M 1/2"	80	< 1

REVERSIBILITY: All models are suitable for tightening and untightening operations. The angle models incorporate a switch for tightening and untightening.

LEVER
PUSH BUTTON
LEVER
PUSH BUTTON

The models highlighted in green are usually available from stock

Accessories available upon request
- Bits, hexagonal sockets, balancers, arm supports, conveyors and compressed air system accessories: see the Accessories Catalogue.

* The torque range indicated is the one we recommend in order to obtain the best performances in the repeatability of the tightening torque.
Under some working conditions, the screwdriver many reach torque values that are lower or higher than the maximum and minimum like shown in the table on the following page. For more information, please contact our **Customer Assistance Service.**

- The figures shown are measured at a pressure of 6.3 bar (ISO 2787), the recommended operating pressure.
- Tightening torque values have been measured in accordance with ISO 5393 standard.
- Noise level has been measured in accordance with ISO 3744 and PN8NTC1.2 standards.
- Vibrations level has been measured in accordance with ISO 8662.1 and ISO 8662.7 standards.
- Accessory drive: female hexagonal drive 1/4 ", 6.35 mm (ISO 1173); male square drive (ISO 1174).
- The code number must be used when ordering.

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 Assistance Service**.

Standard equipment (supplied with the tool)
- Clutch adjustment key
- Additional clutch spring (only for models CZE...)
- Hanging ring
- Eco-friendly packaging
- Use and maintenance manual

Tightening system

TOCS-PC computerised control unit

(Tightening Operations Control System - Pressure Control)

This leading-edge computerised control unit **monitors the tightening cycle** by picking up the pressure signal from the screwdriver and converting it into an electric signal.
This signal is processed and displays the result (OK or KO) of the tightening cycle.

Software features

- Up to **20 tightening sequences** can be programmed and password protected.
- **Each tightening sequence** can contain up to a **maximum of 99 screws**
- For each screw it is possible to programme the maximum number of repetitions in the event of a reject.
- **The type of possible rejects required can be detected** trough the correct programming of tightening cycle.
- The memory stores time/result data concerning the last 1,000 tightening cycles (circular buffer).

The unit features a **large number of I/O's** for:
- selecting the correct tightening sequence from an external PLC (i.e.: rapidly setting up the system when tightening different components);
- manual selection of the tightening sequence and possible reset from external PLC or via built-in keyboard;
- enabling the OK pallet in the event of an OK or KO result;
- signalling the result (OK/KO) of the tightening cycle;
- triggering a programmable end-of-sequence buzzer (with the help of the optional signal light column – see Accessories available on request).

The system can be networked (proprietary protocol) with supervision (programming + data acquisition) and optional software.

Technical features

- **Built-in membrane programming** keyboard.
- **Electrically powered (a.c.)**; if power is interrupted, the data **memory** is maintained by a battery.
- **Illuminated liquid crystal display** with 4 lines of 20 characters.
- **RS232 output** for connection to printer.
- **Visual indicators for signalling tightening status**, located on the panel:
  RED = Tightening KO (incorrect)
  GREEN = Tightening OK (correct) + pallet release buzzer
  (with signal light column available on request).
- **I/O connectors** with contacts powered at 24 Vdc (max. 0.5A) for connection to PLC and/or signal lights.

Model	Description	Code	Dimensions mm Width x Depth x H
TOCS-PC	Control unit	685001043	210 x 265 x 125

Standard equipment (supplied with unit)
- 2m electric power cable.
- Use and maintenance manual.
- Eco-friendly packaging.

Models available on request
- Version with network board for communicating with specific software (programming unit + data acquisition).

Accessories available on request
- OK/KO signal light column with built-in buzzer: code 686000113
- Transport handle
- Programming switch

The models highlighted in green are usually available from stock

The computerised control unit must be set up in accordance with the operating conditions of the screwdriver (intake pressure): please contact our Technical Assistance Service.

INDUSTRIAL AIR TOOLS

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