



**0% error
100% accuracy**

TOM
Tightening Operation Monitor

"Poka Yoke" device
for the tightening process

Fiam[®]
PEOPLE AND SOLUTIONS

TOM -Tightening Operation Monitor

Tightening and monitoring with TOM: the intelligent simplicity

TOM unit is a “Poka Yoke,” process verification 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

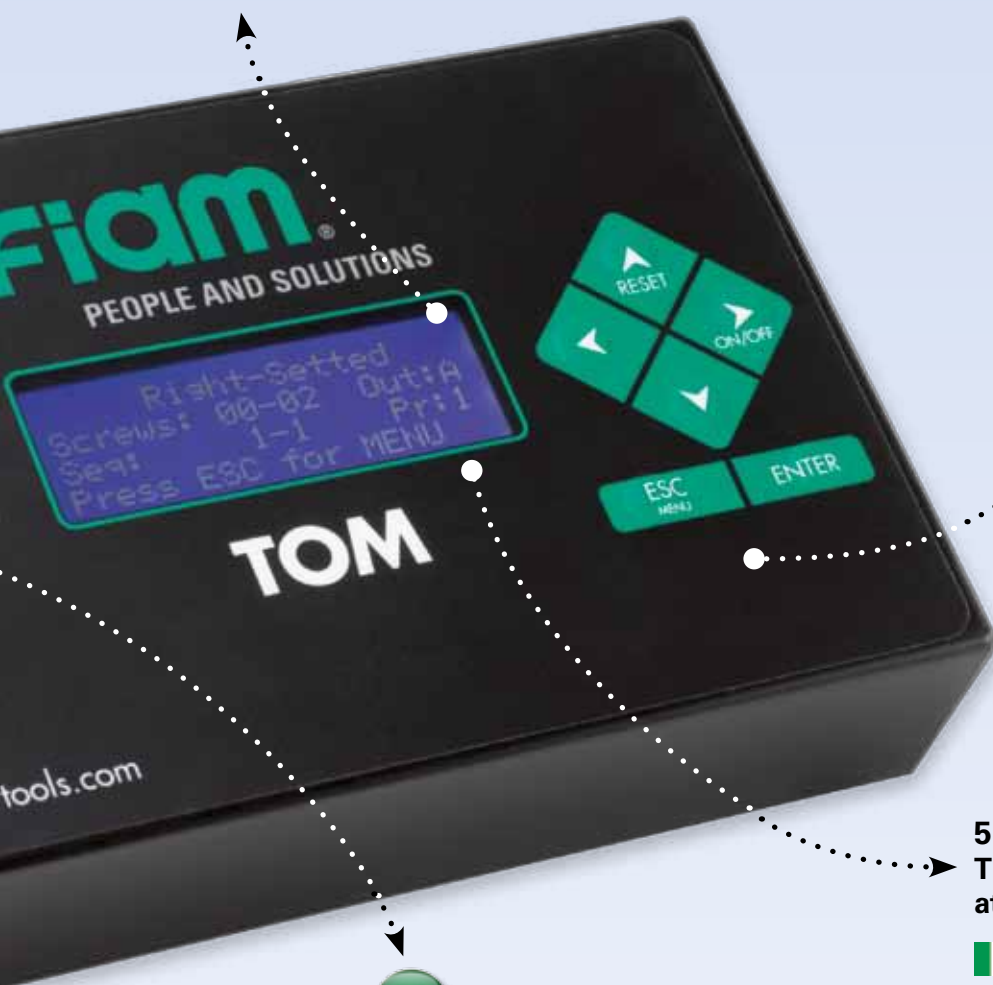


- For air shut-off screwdrivers (including oil pulse wrenches) equipped with air pick-up signal (ported) and Fiam auto-feeding tightening systems
- The same unit can manage **up to 8 tools** (used by one operator) with different torque and speed setting, moreover it can enable one tool at a time according to programmed sequence
- Easy to use: through a **SINGLE PROGRAM** or a **SEQUENCE of PROGRAMS** (up to 8) with **99 tightenings each**. The programs can be selected also from external PLC through the available I/O signals

- It **discriminates the untightenings by decreasing the count** of the performed tightenings
- When TOM is connected to locking/unlocking unit, it is possible to activate the **TIME OFF** function, a deactivation time after the OK tightening that keeps the screwdriver locked and prevents the operator using the tool twice on the same – already tightened - screw (re-hit), avoiding potential damages to the component to be assembled or to the tool and avoiding likely increase of the torque on the joint. This option guarantees the tool is properly used also increasing its life time

LARGE DISPLAY

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



ACOUSTIC SIGNALS

- 🔊 = Screw OK
- 🔊 🔊 = Program end
- 🔊 🔊 🔊 = Error
- 🔊 🔊 🔊 🔊 = Sequence end

- 😊 OK
- 😄 CYCLE END
- 😞 NOK

5 LANGUAGES

The language can be selected at any stage of programming

- 🇮🇹 Italian
- 🇫🇷 French
- 🇬🇧 English
- 🇪🇸 Spanish
- 🇩🇪 Deutsch

➡ **It can be connected to pick and place systems:** it ease and guide, through connection to visual devices, the correct pick-up of screws or different fasteners. Also without line PLC.



➡ **Maintenance of screwdrivers:** thanks to the tightening counter, it is possible to control the number of rundowns, to program the maintenance of the screwdrivers and let them work at rated performances over time

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

➡ **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



Recognize errors before they turn into wastes!

The Poka Yoke concept, widespread among our customers, is closely related to the principles of the LEAN PRODUCTION.

TOM by Fiam is a Poka Yoke device which benefits in **many ways your assembly processes**:

- **Recognizes the error** before it becomes an irreversible waste
- **It halts the assembly line** in order to prevent that the waste reaches the end of cycle, thus adding manufacturing costs involved to the waste
- It allows fixing the mistake and undertaking **corrective measure**
- **It relieves the operator from monitoring the process step by step**, with great benefit for the quality of the final product
- **It eliminates the costs of post-process controls**, identifying mistakes as they occur.

For assembly processes that meet the principles of LEAN PRODUCTION.

Poka Yoke, some curiosities...

THE 5 PRINCIPLE OF LEAN MANUFACTURING

1. Specify what creates value from the customers perspective
2. Identify all the steps along the process chain
3. Make those processes flow
4. Make only what is pulled by the customer
5. Strive for perfection by continually removing wastes

THE MEANING

Poka-yoke (ポカヨケ?) [poka yoke] is a Japanese term that means "mistake-proofing." A poka-yoke is any mechanism in a lean manufacturing process that helps an operator avoid (yokeru) mistakes (poka). Its purpose is to eliminate product defects by preventing, correcting, or drawing attention to human errors as they occur.

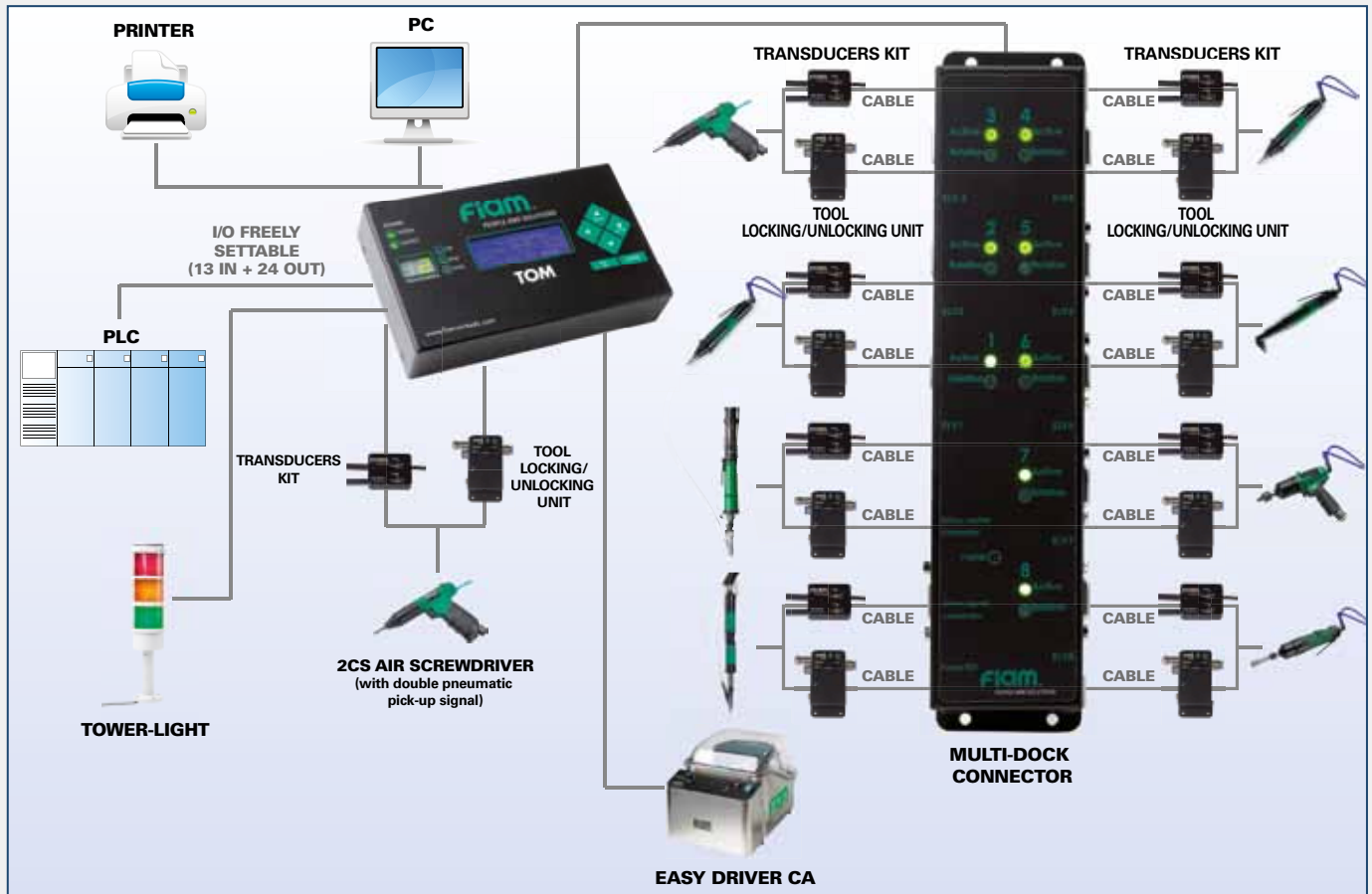
THE EFFECTS

The basic principle is to identify a mistake before it turns into irreversible waste, the most important effect is **relieving the operator from the continual monitoring of the machine in operation.**

THE FATHER

Shigeo Shingo is a Japanese engineer considered the father of the Poka Yoke system. He studied at Toyota for a long time the benefits of strategic control in order to achieve the goal of "zero defects" production, at the root of what is now known as TPS (Toyota Production System). He studied devices and manufacturing practices, today very common for mistake-proofing.

TOM answers every need



TOM can be connected to air shut-off screwdrivers - straight, pistol and angle models - equipped with air pick-up signal. It is also suitable for oil pulse wrenches with air shut-off system (IHE_A) as well as Fiam auto-feeding tightening systems featuring air screwdrivers with telescoping and forward bit stroke device. Choose your screwdriver among more than 100 models available.















































































































































In the configuration displayed above, the tower light shows to the operator the status of tightening sequences: OK - NOK and CYCLE COMPLETED. The **keyed optional device** instead, allows the line manager to unlock the tightening cycle: in case of two errors on the same component, in fact the cycle halts and the piece is rejected.

On the right, a workbench including a telescopic arm stand to hang the straight screwdriver and a cartesian arm for horizontal operation of pistol screwdriver. The use of ergonomic arms is an operator necessary aid in case of high tightening torque, in this case more than 3 Nm.



Air screwdrivers with pneumatic pick-up signal

		Type of screwdriver	Model	Code	Grip	Tightening torque on soft joint		Idle speed	Starting system	Reversibility	Weight		Dimensions (mm)	Air consumption	Accessories	Noise level/*		
						min.	max.				min.	max.					kg	lb
STRAIGHT MODELS																		
	LEVER	15C2AL-2CS	112509891		0,4 ÷ 2,0	3.54÷17.7	2000			0,59	1.30	38x230	4	⊗ F 1/4"	73			
		15C3AL-2CS	112509892		0,4 ÷ 3,5	3.54÷30.98	1400			0,60	1.32	38x230	5,5	⊗ F 1/4"	73			
		15C4AL-2CS	112509893		0,4 ÷ 4,5	3.54÷39.83	950			0,60	1.32	38x230	5,5	⊗ F 1/4"	73			
		15C5AL-2CS	112509894		0,4 ÷ 5,0	3.54÷44.25	650			0,60	1.32	38x230	5,5	⊗ F 1/4"	73			
	PUSH TO START	15C2A-CS	112507035		0,4 ÷ 2,0	3.54÷17.7	2000			0,59	1.30	38x230	4	⊗ F 1/4"	73			
		15C3A-CS	112507036		0,4 ÷ 3,5	3.54÷30.98	1400			0,60	1.32	38x230	5,5	⊗ F 1/4"	73			
		15C4A-CS	112507037		0,4 ÷ 4,5	3.54÷39.83	950			0,60	1.32	38x230	5,5	⊗ F 1/4"	73			
		15C5A-CS	112507038		0,4 ÷ 5,0	3.54÷44.25	650			0,60	1.32	38x230	5,5	⊗ F 1/4"	73			
	LEVER	26C4AL-2CS	114807255		0,4 ÷ 4,0	3.54÷35.4	2000			0,85	1.87	40x234	6	⊗ F 1/4"	75			
		26C5AL-2CS	114807256		0,4 ÷ 5,0	3.54÷44.25	1350			0,85	1.87	40x234	6	⊗ F 1/4"	75			
		26C8AL-2CS	114807257		3,5 ÷ 8,0	30.98÷70.8	1000			0,93	2.05	40x260	6	⊗ F 1/4"	75			
		26C10AL-2CS	114807258		3,5 ÷ 9,5	30.98÷84.08	850			0,93	2.05	40x260	6	⊗ F 1/4"	75			
		26C12AL-2CS	114807259		3,5 ÷ 12	30.98÷106.2	400			0,93	2.05	40x260	6	⊗ F 1/4"	75			
	PUSH TO START	26C4A-CS	114807519		0,4 ÷ 4,0	3.54÷35.4	2000			0,85	1.87	40x235	6	⊗ F 1/4"	75			
		26C5A-CS	114807520		0,4 ÷ 5,0	3.54÷44.25	1350			0,85	1.87	40x235	6	⊗ F 1/4"	75			
		26C8A-CS	114807521		3,5 ÷ 8,0	30.98÷70.8	1000			0,93	2.05	40x262	6	⊗ F 1/4"	75			
		26C10A-CS	114807522		3,5 ÷ 9,5	30.98÷84.08	850			0,93	2.05	40x262	6	⊗ F 1/4"	75			
		26C12A-CS	114807523		3,5 ÷ 12	30.98÷106.2	400			0,93	2.05	40x262	6	⊗ F 1/4"	75			
	LEVER	CY9RAM-WP-2CS	116509210		7 ÷ 16	61.95÷141.6	700			1,670	3.67	46x345	10	⊗ F 1/4"	80			
		CY11RAM-WP-2CS	116509065		7 ÷ 24	61.95÷212,4	450			1,670	3.67	46x345	10	⊗ F 1/4"	80			
OIL PULSE WRENCH WITH AIR SHUT-OFF	IHE18A-MR-2CS	119550028		10 ÷ 18	88.5÷159.3	4200			0,800	1.8	46x224	4,2	⊗ F 1/4"	-				
	IHE25A-MR-2CS	119559944		15 ÷ 25	132.6÷221.3	6800			0,800	1.8	46x224	5,3	⊗ F 1/4"	-				
	IHE35A-2CS	119550029		22 ÷ 35	194.7÷309.8	6200			0,860	1.9	46x231	6,7	⊗ F 3/8"	-				
	IHE45A-2CS	119550045		31 ÷ 47	274.4÷416	5000			0,970	2.1	46x242	6,7	⊗ F 3/8"	-				
PISTOL MODELS																		
	PISTOL	15C2AP-2CS	112509895		0,6 ÷ 2,2	5.31÷19.47	2200			0,70	1.54	37x209x157	6	⊗ F 1/4"	71			
		15C3AP-2CS	112509896		0,4 ÷ 3,5	3.54÷30.98	1400			0,72	1.58	37x209x157	6	⊗ F 1/4"	71			
		15C4AP-2CS	112509829		0,4 ÷ 4,5	3.54÷39.83	950			0,72	1.58	37x209x157	6	⊗ F 1/4"	71			
		15C5AP-2CS	112509830		0,4 ÷ 5,0	3.54÷44.25	650			0,72	1.58	37x209x157	6	⊗ F 1/4"	71			
	FORWARD PISTOL GRIP	15C2APA-2CS	112509899		0,6 ÷ 2,2	5.31÷19.47	2200			0,70	1.54	31x178x156	6	⊗ F 1/4"	71			
		15C3APA-2CS	112509900		0,4 ÷ 3,5	3.54÷30.98	1400			0,72	1.58	31x178x156	6	⊗ F 1/4"	71			
		15C4APA-2CS	112509876		0,4 ÷ 4,5	3.54÷39.83	950			0,72	1.58	31x178x156	6	⊗ F 1/4"	71			
		15C5APA-2CS	112509883		0,4 ÷ 5,0	3.54÷44.25	650			0,72	1.58	31x178x156	6	⊗ F 1/4"	71			
	REV. NEXT TO THE START BUTTON	15C2APA-2200-R-2CS	112514555		0,6 ÷ 2,2	5.31÷19.47	2200			0,75	1.65	37x186x155	6	⊗ F 1/4"	71			
		15C3APA-1400-R-2CS	112514556		0,4 ÷ 3,5	3.54÷30.98	1400			0,77	1.69	37x186x155	6	⊗ F 1/4"	71			
		15C4APA-950-R-2CS	112514557		0,4 ÷ 4,5	3.54÷39.83	950			0,77	1.69	37x186x155	6	⊗ F 1/4"	71			
		15C5APA-650-R-2CS	112514558		0,4 ÷ 5,0	3.54÷44.25	650			0,77	1.69	37x186x155	6	⊗ F 1/4"	71			
	WITH TRIPLE AIR INLET	15C2APA3I-2CS	112507008		0,6 ÷ 2,2	5.31÷19.47	2200			0,76	1.67	37x190x155	6	⊗ F 1/4"	71			
		15C3APA3I-2CS	112507009		0,4 ÷ 3,5	3.54÷30.98	1400			0,78	1.72	37x190x155	6	⊗ F 1/4"	71			
		15C4APA3I-2CS	112507010		0,4 ÷ 4,5	3.54÷39.83	950			0,78	1.72	37x190x155	6	⊗ F 1/4"	71			
		15C5APA3I-2CS	112507011		0,4 ÷ 5,0	3.54÷44.25	650			0,78	1.72	37x190x155	6	⊗ F 1/4"	71			
	PISTOL	26C4AP-2CS	114807224		0,4 ÷ 4,0	3.54÷35.4	2000			0,87	1.91	38x190x155	7	⊗ F 1/4"	73			
		26C5AP-2CS	114807225		0,4 ÷ 5,0	3.54÷44.25	1300			0,87	1.91	38x190x155	7	⊗ F 1/4"	73			
		26C8AP-2CS	114807226		3,5 ÷ 8,0	30.98÷70.8	1000			0,97	2.13	38x210x155	7	⊗ F 1/4"	73			
		26C10AP-2CS	114807227		3,5 ÷ 9,5	30.98÷84.08	800			0,97	2.13	38x210x155	7	⊗ F 1/4"	73			
		26C12AP-2CS	114807228		3,5 ÷ 12	30.98÷106.2	400			0,97	2.13	38x210x155	7	⊗ F 1/4"	73			
	FORWARD PISTOL GRIP	26C4APA-2CS	114807229		0,4 ÷ 4,0	3.54÷35.4	2000			0,95	2.09	39x195x160	7	⊗ F 1/4"	73			
		26C5APA-2CS	114807230		0,4 ÷ 5,0	3.54÷44.25	1300	 </										

Air screwdrivers with pneumatic pick-up signal

PISTOL MODEL		Type of screwdriver	Model	Code	Grip	Tightening torque on soft joint		Idle speed	Starting system	Reversibility	Weight		Dimensions (mm)	Air consumption	Accessories	Noise level		
						min.	max.										min.	max.
						Nm	in lb										rpm	Type
OIL PULSE WRENCH WITH AIR SHUT-OFF	WITH TRIPLE AIR INLET	26C4APA3I-2CS	114807463		0,4 ÷ 4,0	3.54÷35.4	2000			0,94	2.07	37x212x155	7	⬡ F 1/4"	73			
		26C5APA3I-2CS	114807464		0,4 ÷ 5,0	3.54÷44.25	1300			0,94	2.07	37x212x155	7	⬡ F 1/4"	73			
		26C8APA3I-2CS	114807465		3,5 ÷ 8	30.98÷70.8	1000			1,07	2.35	37x212x155	7	⬡ F 1/4"	73			
		26C10APA3I-2CS	114807466		3,5 ÷ 9,5	30.98÷84.08	800			1,07	2.35	37x212x155	7	⬡ F 1/4"	73			
		26C12APA3I-2CS	114807467		3,5 ÷ 12	30.98÷106.2	400			1,07	2.35	37x212x155	7	⬡ F 1/4"	73			
	OIL PULSE WRENCH WITH AIR SHUT-OFF	CY9PRAM-WP-2CS	116509211		7 ÷ 16	61.25÷141.6	700			1,75	3.85	46x265x175	10	⬡ F 1/4"	80			
		CY11PRAM-WP-2CS	116509069		7 ÷ 24	61.25÷212.4	450			1,75	3.85	46x265x175	10	⬡ F 1/4"	80			
		IHE25PA-MR-2CS	119550026		14 ÷ 26	123.9÷230.1	7200			0,92	2.0	46x170x168	5,8	⬡ F 1/4"	-			
		IHE55PA-2CS	119550027		37 ÷ 57	327.5÷504.5	7200			1,35	3.0	53,5x194x192	7,5	⬡ M 3/8"	-			
		IHE90PA-2CS	119550041		64 ÷ 90	566.40÷796.5	5400			1,55	3.4	53,5x200x192	8,3	⬡ M 1/2"	-			
OIL PULSE WRENCH WITH AIR SHUT-OFF	IHE120PA-2CS	119550042		85 ÷ 120	752.3÷1062	5300			1,85	4.1	59x209x195	9,2	⬡ M 1/2"	-				
	IHE145PA-2CS	119550043		120 ÷ 148	1062÷1309.8	3600			2,26	5.0	64x216x204	12,2	⬡ M 1/2"	-				
	IHE210PA-2CS	119550039		145 ÷ 210	1283.3÷1858.5	3700			3,10	6.8	72x239x215	12,2	⬡ M 3/4"	-				
	IHE230-PA-2CS	119550040		180 ÷ 230	1593÷2035.5	2700			3,80	8.4	78x263x232	12,2	⬡ M 3/4"	-				
	ANGLE MODELS	15C2A30-2CS	112509903		0,8 ÷ 2,0	7.08÷17.7	2000			0,70	1.54	32x266x28,5	4	⬡ M 1/4"	73			
15C3A30-2CS		112509904		0,8 ÷ 3,0	7.08÷26.55	1400			0,70	1.54	32x266x28,5	5,5	⬡ M 1/4"	73				
15C4A30-2CS		112509905		0,8 ÷ 4,0	7.08÷35.4	950			0,70	1.54	32x266x28,5	5,5	⬡ M 1/4"	73				
15C5A30-2CS		112509906		0,8 ÷ 5,0	7.08÷44.25	650			0,70	1.54	32x266x28,5	5,5	⬡ M 1/4"	73				
15C2A90-CS		112509907		0,8 ÷ 2,0	7.08÷17.7	2000			0,70	1.54	32x276x37,5	4	⬡ M 1/4"	73				
15C3A90-2CS		112509908		0,8 ÷ 3,0	7.08÷26.55	1400			0,70	1.54	32x276x37,5	5,5	⬡ M 1/4"	73				
15C4A90-2CS		112509909		0,8 ÷ 4,0	7.08÷35.4	950			0,70	1.54	32x276x37,5	5,5	⬡ M 1/4"	73				
15C5A90-2CS		112509910		0,8 ÷ 5,0	7.08÷44.25	650			0,70	1.54	32x276x37,5	5,5	⬡ M 1/4"	73				
AD6RA1-2CS		114893986		2,5 ÷ 6	22.13÷53.1	1150			1,20	2.64	40x304,5x42	10	⬡ M 3/8"	77				
AD9RA1-2CS		114893989		2,5 ÷ 9	22.13÷79.65	900			1,20	2.64	40x304,5x42	10	⬡ M 3/8"	77				
AD14RA1-2CS		114893994		3 ÷ 14	26.55÷123.9	600			1,40	3.08	40x334x46,5	10	⬡ M 3/8"	77				
AD26RA1-2CS		114893996		11,5 ÷ 26	101.78÷230.1	350			1,45	3.19	40x331x46,5	10	⬡ M 3/8"	77				
AG40RA-2CS		114893975		18 ÷ 40	159.3÷354	400			2,05	4.51	40x419x52	13	⬡ M 3/8"	80				
AG60RA-2CS		114893980		29 ÷ 60	256.65÷531	300			2,30	5.06	40x438x62	13	⬡ M 1/2"	80				

Legend

15 = Power of the motor in Watt/10 • C = Screwdriver • 2 = Maximum tightening torque in Nm • A = Air shut-off system • P = Pistol grip
PA = Forward pistol grip • 30 = Head at 30° • 90 = Head at 90°
2200 = Idle speed • R = Reversibility • 3I = 3 inlets (3 air inlets)
2CS = Double-signal pressure • WP = Without push

Reversibility: all models are suitable for tightening and untightening operations

Air inlet

For all models
1/4" gas

Recommended hose bore

15C...	Ø 5 mm
26C... CY... AD...	Ø 8 mm
IHE18, 25, 35, 45, 55... AG...	Ø 10 mm
IHE90, 120, 145, 210, 230	Ø 12 mm

	Lever start		Push start
	Push button		

NOTE: For models with reversibility next to the start button: reversibility switch can be positioned either right or left side of the screwdriver

- 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 ISO 15744 standards. *Additional factor: 3
- dBA spread in method and production (ISO 15744).
- Vibrations level have 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).
- 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 Consultancy Service.

Models available upon request

For models designed according to the customer's needs, please contact Fiam Technical Assistance Service.

Standard equipment (supplied with tool)

- Clutch adjustment key
- Additional clutch spring (only for straight and pistol models)
- Hanging ring
- Use and maintenance manual
- Eco-friendly packaging

Accessories available upon request

- Bits, sockets, etc., balancers, exhaust silencers and other compressed air system accessories: (see Accessories catalogue)
- Collar bracket for straight models 15C and 26C to be installed on arm stands and with auxiliary grip
Code 692039006 for 15C (all models), 26C4...and 26C5...models
Code 692039007 for 26C8/10/12 models

FEATURES

14 INPUTS

- 8 for programmes selection, 6 for remote functioning: switching off, program activation, tool stop, tool loosening, program reset

24 OUTPUTS

- For results, active program, screwdriver status and possible electro-valve activation, auxiliary output

AUTOMATIC CHECK OF TIGHTENING TIME

- Which can be adjusted by setting the cycle time thus discriminating the different KO results

SINGLE PROGRAM

99 tightenings



- Tightening with min/max time equal for all screws
- Screws count
- 3 different acoustic signals: tightening end, single program end, error

SEQUENCE PROGRAM

99 tightenings x 8



- More single programmes (up to 8) in sequence
- 4 different acoustic signals: tightening end, single tightening end, sequence end, error
- It can be selected from PC
- For each tightening sequence it is possible to program the **maximum number of tightening attempts fro NOK screws**

RS 232 SERIAL PORT

- To print the following results in sequence: Date / hour - Number active output - Result - Tightening Time - Screw number - Program number - Sequence

PASSWORD

- Two modalities: one does not allow the operator changing menu's parameters; the other, in addition to former's possibilities, in case of error and consequent unit stop, allows the line manager to reactivate the process by means of a password or key (optional)

TIME

- It can be activated without buffer-battery to be replaced

MEMORY

- Parameters for statistics (they can printed through RS232):
OK piece - NOK Screws - Pressed resets (NOK pieces) - Number of screws counted by TOM (data not resettable) – It stores data related to last 6,000,000 screws

TOOL TEST

- It controls tool air ports and connections works properly

REMOTE FUNTIONING

- From external PLC (or sensor) it is possible to stop the tool with the dedicated locking/unlocking unit. For instance, when we work with jigs, the tool is activated only when parts are correctly positioned

MASKED TIME

- This feature disable any controls for a set time during which TOM does not detect possible incorrect operations by the worker (for instance "unintentional starts" with push-to-start screwdrivers)

RELEASE TIME

- This function allows to better identify the OK tightenings, even if the lever is released in a very short time after the clutch shut-off (for example, if the operator is particularly fast to tighten and release the lever)

Model	Description	Code	Dimensions (mm) width x depth x height	Electric feed
TOM	Monitoring unit	685001062	208 x 128 x 42	24V,110/230V, 50/60 Hz

Standard equipment

- Feeder • Feed cable • Use and maintenance manual • Eco-friendly packaging

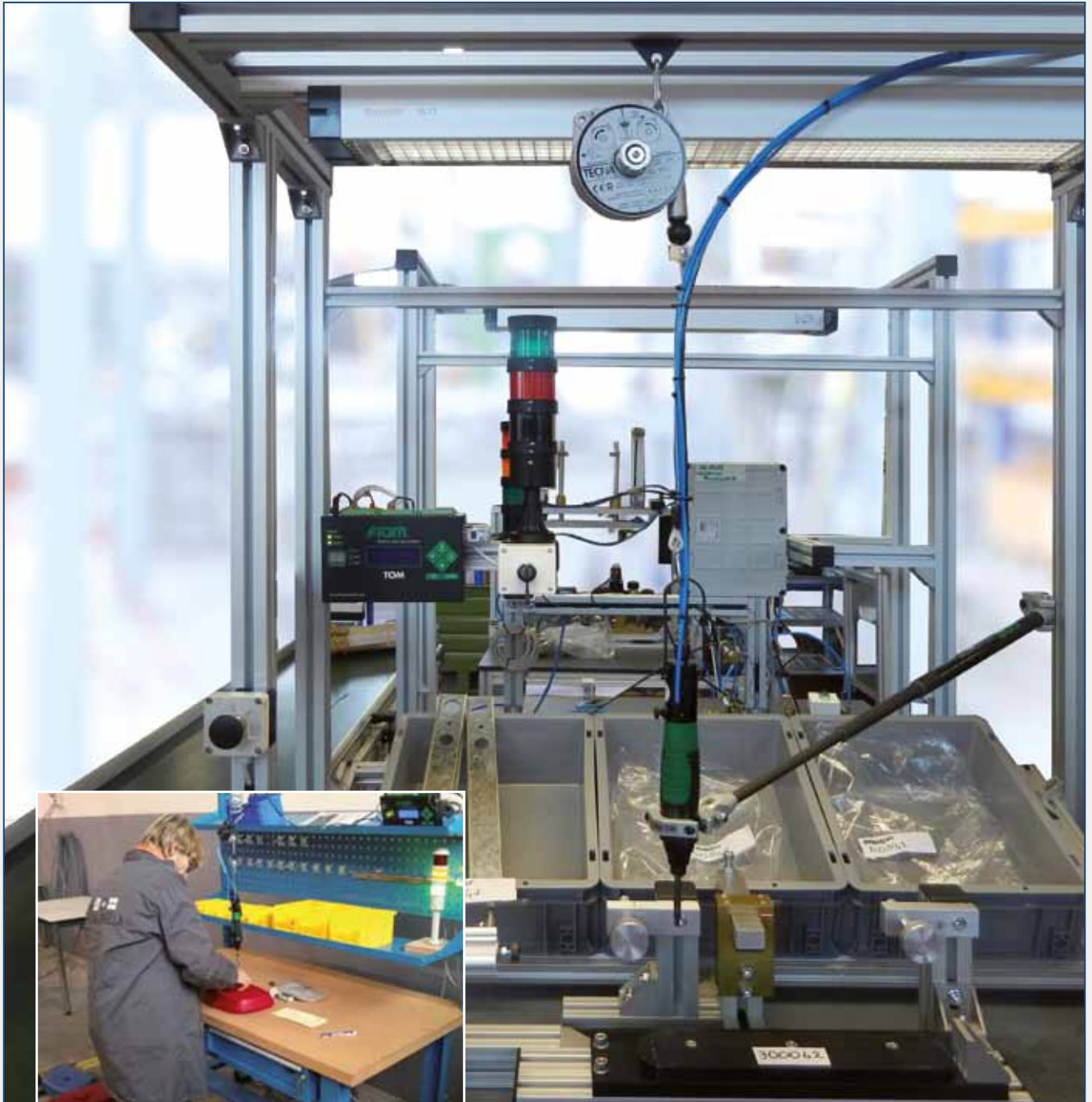
TOM needs to be purchased along with **Fiam transducer**, one per each tool (except when TOM is connected to EasyDriver CA).
Cod. **687041041**



A proved system against pressure changes

The use of two pneumatic signals (tool start and clutch operated) guarantees the system functioning **regardless of the pressure changes, critical point in many production lines.**

A considerable advantage in respect to other poka-yoke systems, which are more difficult to programme and use a single signal: which are considerably affected by pressure fluctuations.



Workstation with straight screwdriver with lever start 15C5 AL-2CS, arm, TOM and tower-light

Pistol grip oil pulse wrench with automatic air shut-off: the screwdriver is equipped with air pick-up signal which hoses are inserted into the handle for operator's maximum comfort



ACCESSORIES AVAILABLE UPON REQUEST

MULTI-DOCK CONNECTOR



Connecting up to 8 tools (each tool has a dedicated program) that can operate individually depending on TOM programming. There are 2 LEDs for each screwdriver: one indicates the enabled screwdriver (to be used) and one indicates the tool is working.
Geared for additional feeding in case of need (feeder upon request).
Supplied with adapter for connection with TOM and 2 connecting cables.

Model	Code
Multi-dock connector	685001065

TOOL LOCKING/ UNLOCKING DEVICE



It permits to TOM unit to enable/disable connected tool. Including status led. Extremely silent and equipped with device to convey the exhaust away from the working area. To be used with specific connecting cables (see below).

Model	Code
Unit for 15C/26C (including couplings for 10 mm Ø hose bore)	685001069
Unit for AD/AG/IHE/CY (including couplings for 12 mm Ø hose bore)	685001070

CABLES



To connect TOM with locking/unlocking device when a **single** screwdriver is used.

Model	Code
Cable TOM / stop unit	685001071

To connect multi-dock connector with locking/unlocking device when several screwdrivers are used.

Model	Code
Cable multi-dock connector / locking/unlocking device	685001072

TOWER-LIGHT



3 colour tower-light to be connected to TOM through supplied cable. It allows immediate, visual display of the tightening outcome.

Model	Code
3 colours towerlight	687041018

TRANSDUCER FOR TOM



Completely designed and manufactured by Fiam, it is a single box that receives two pneumatic signals (input) through two hoses of different colors: black for starting signal and green for torque signal;
Equipped with led indicator and unique electric connecting cable (output) to carry the electrical signal to the TOM unit. Reduced dimensions and weight, easier to calibrate.

Model	Code
Transducer for TOM	687041041

CONNECTING HOSES (AIR AND SIGNALS)



New exclusive air hoses, designed by Fiam. They provide specific features for use of the new transducer for TOM (cod. 687041041). The two hoses for the pneumatic signal pick-up are fixed to air supply hose, while the transducer can be placed at the opposite end of the hose rather than on the tool. A very compact solution, completely spiral shape, which maintains a tidy work area for the operator. The hoses are 2.5 M long (measured with stretched hose and including 35 mm useful linear hose for connections); this dimension is the one that guarantees the transducer perfect efficiency.

For different lengths, we recommend the connections to linear hoses.

Model	Code	L mt	Ø spiral mm	Ø ext x int mm	2 hoses for pneumatic spiral Ø ext x int mm
Spiral multi-hose for TOM D12	693011027	2,5	80	9x12	2,5x4
Spiral multi-hose for TOM D10	693011026	2,5	80	7,5x10	2,5x4

COVER



Covering device for the upper part of TOM unit, compact and easy to install. It hides any anti aesthetic wiring. It prevents intentional or unintentional contacts and damages to TOM unit. It prevents modifications / tampering by unauthorized personnel.

It protects the electrical contacts from any traction thanks to the presence of 3 cable glands.

Model	Code
Cover	687041043

BT TELESCOPIC REACTION ARMS IN CARBON FIBER



This solution for ergonomic workplace eliminate torque reaction on operator's wrist. They guarantee reliability and long life span thanks to accurate manufacturing process and innovative, high quality materials used.

- Each arm has **3 telescopic elements** for maximum handiness and reduced worker effort
- Double final junction allows maximum freedom of action, great handiness, **even when tightening with the tool bent**
- To be used with any type of tools
- Laboratory tests have demonstrated that Fiam BT **arms bear 30%** higher torque generated by the tool in respect to **competitors arms**
- 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 work range (mm)	Min work range (mm)	Ø max tool (mm)
BT10 1000	692071010	10	1105	495	27-46
BT10 1500	692071020	10	1605	665	27-46
BT15 1000	692071030	15	1095	515	27-46
BT15 1500	692071040	15	1595	685	27-46
BT15 2000	692071050	15	2095	855	27-46
BT40 1000	692071060	40	1095	515	27-46
BT40 1500	692071070	40	1595	685	27-46
BT40 2000	692071080	40	2095	855	27-46
BT40 2500	692071090	40	2095	1025	27-46
BT80 1500/2000/2500	upon request	80	from 1595 up to 2595	from 685 up to 1025	-
BT150 1500/2000/2500	upon request	150	from 1560 up to 2560	from 650 up to 990	-
BT220 1500/2000/2500	upon request	220	from 1575 up to 2575	from 665 up to 1005	-

ACCESSORIES AVAILABLE UPON REQUEST

BC CARTESIAN ARMS



Solution for ergonomic workplace to be used with every type of tool with diameter up to 50 mm and weight up to 7 Kg. Equipped with universal clamp and made of hardened chrome steel, they are extremely solid and steady. Their movements running on ball recirculating runners guarantee smoothness, handiness and accuracy. They permit to work by tilting the tool axis, favour tool return to its initial position, ease tool position adjustment in continuous mode: this is made without disassembling components, by loosening and re-tightening screws in the new position.

Model	Code	Max torque Nm	Min. working radius (B) mm	Min. working radius (A) mm	Max. tool diameter mm	Max load kg	Weight kg
Cartesian Arms BC12	692031020	12	775	180	32-50	1	8,5
Cartesian Arms BC25	692031021	25	770	175	32-50	2	9,5
Cartesian Arms BC40	692031022	40	770	120	32-50	3	17,5
Cartesian Arms BC40/7	692031023	40	770	120	32-50	7	17,5

SWIVELLING BAIL RING FOR MODELS AD, AG, 50C



Assembly sequence

A practical accessory designed to keep the tool always in a horizontal position, perfectly balanced and swivelling allowing a considerable reduction in fatigue during tightening operations.

Model	Code	For models
Swivelling bail ring	681011060	AD...
Swivelling bail ring	681011055	AG...

RUBBER PROTECTIVE COVE FOR IHE MODELS



Rubber protective covers available for pistol wrenches to safeguard them and workpieces from accidental contact and guarantee longer lifetime.

Code	For screwdrivers
681120700	IHE25PA- MR-2CS
681120702	IHE55PA-2CS
681120703	IHE90PA-2CS
681120704	IHE120PA-2CS
681120705	IHE145PA-2CS
681120706	IHE210PA-2CS
681120707	IHE230PA-2CS