

Air screwdrivers & nutrunners



Air nutrunner motors

New
MCZE... MSCZE...
MCSE... MSCSE...

- **Torque control system:**
Uni Jointech (slip clutch)
- **Series:**
MCZE, MCZE...R, MSCZE
MCSE, MCSE...R, MSCSE
MCY...-1, MCY...R-1
- **Tightening torque:**
from 0,6 to 25 Nm



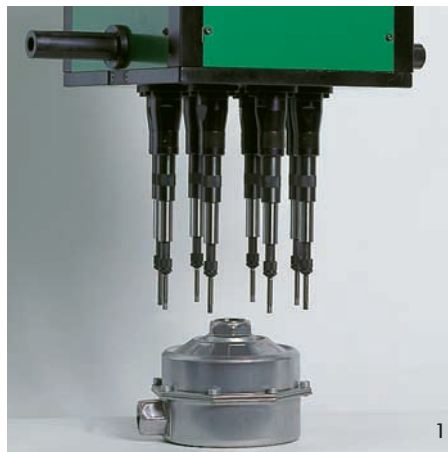
Air nutrunner motors

Greater strength and longer lifetime thanks to the new design of the internal mechanisms

Fiam air nutrunner motors...

...are designed for use in **single or multi-spindle** (see photo 1) in manual or automatic fastening units, or in machines such as rotary tables in **automatic assembly lines** (see photo 2).

Fiam nutrunner motors are designed and manufactured for continuous and heavy duty applications by providing extremely accurate torque tightening systems.



The fastening units using Fiam air nutrunner motors can be designed and built by the customer or, as is more generally the case, by Fiam.



Fiam nutrunner motors offer a very wide range of rotation speeds and tightening torques. They can also be fitted with various types of starting systems, axial compensation, and pneumatic signal port.

MCZE3



MCY11R-1

MCY9-1

MSCSE8



MCSE8R



The torque control system Uni Jointech (slip clutch)

Each air nutrunner motor is endowed with an adjustable device (clutch) which allows the actual torque transmitted to the screw/bolt to be limited to the required tightening torque value. This is done by mechanically disengaging the transmission of drive as soon as tightening torque is reached. In these Fiam air motors the **torque control system Uni Jointech (slip clutch) starts to slip** as soon as **the set torque level is reached**. These motors, extremely versatile, can be used with any type of joint and are ideal for use with self-threading screws.

Idle speed
from 450 to 3200 r.p.m.

Reversibility
Fiam nutrunner motors are designed for both right hand rotation and reversible version. Reversible motors have two compressed air inlets which are used alternatively depending on the required direction of rotation.

Fiam air nutrunner motors are designed for use with lubricated compressed air.



Starting system

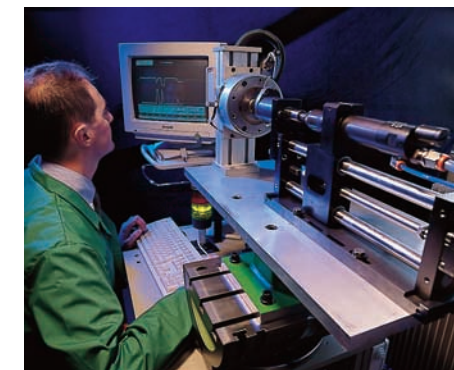
Air nutrunner motors can be automatically push started, or started by direct remote control.

● **Automatic push starting** is a simple and economical system for only right hand rotation motors. The motor starts automatically when a push of about 2 or 3 Kg is applied directly to it. This is the recommended system for starting motors installed on automatic fastening slides.

● **Direct starting from a remote control signal** is achieved by the application of a 3-way pneumatic control valve (on right hand rotation motors), or 5-way control valve (on reversible motors). Direct starting is recommended for multi-spindle assembly systems where the operator's effort has to be reduced.

Cycle control

The use of nutrunner motors with clutches enables control of the screw tightening cycle by a **pneumatic signal** generated by the motor itself. With suitable processing and connections, this signal can be used to trigger visual or acoustic indicators (lights or buzzers) to warn the operator of the end of each cycle, torque value reached, etc. or to control the up-down movement of ancillary equipment or other cycle sequences. The pneumatic signal is available from a special hole in the motor casing. Fiam Research & Development Service is equipped with a **testing bench for air nutrunner motors** which makes it possible to run very careful trials. In fact, these products are used on high-yield automatic machines and must guarantee **top performance and reliability**.



Testing bench for air nutrunner motors

This new instrument of modern conception monitors motor functions during the whole fastening cycle as well as elaborating in real time, by means of a computer, the data relative to the pneumatic pressure signal in each of these cycles. This guarantees great working safety for air nutrunner motors and thus giving excellent performances on whatever assembly equipment they are used.

Ergonomic factors

Low noise level is an essential requirement of air nutrunner motors. Fiam air nutrunner motors feature extremely effective systems for muffling the noise generated by the air exhaust, and fully comply with all current standards. Careful analysis of internal gears has also led to a significant reduction in mechanical noise.

Customized solutions

The wide range of air nutrunner motors illustrated in this catalogue, are only a small part of what Fiam can offer. A skilled technical staff and extremely flexible manufacturing system enable Fiam to meet any special requests and **customized motor version**.

Air nutrunner motors

Model	Code	TIGHTENING TORQUE				IDLE SPEED	STARTING SYSTEM	REVERSIBILITY	WEIGHT	DIMENSIONS (mm)	AIR CONSUMPTION	ACCESSORIES	SOUND PRESSURE LEVEL
		Hard joint		Soft joint									
		Min.	Max.	Min.	Max.								
MCZE2	112311722	0,8	2,8	0,8	2,5	2800	↻	0,660	pag. 7	7	⊘ F 1/4"	72	
MCZE3	112311723	1	3,3	0,8	3	1300	↻	0,750	pag. 7	7	⊘ F 1/4"	72	
MCZE4	112311724	1	3,5	0,8	3,3	850	↻	0,750	pag. 7	7	⊘ F 1/4"	72	
MCZE5	112311725	0,8	4,7	0,6	4,2	600	↻	0,750	pag. 7	7	⊘ F 1/4"	72	
MCSE4	114611714	1	5,8	1	5,8	2500	↻	0,840	pag. 7	9	⊘ F 1/4"	77	
MCSE5	114611715	1,5	7,5	1,5	7,5	1500	↻	0,850	pag. 7	9	⊘ F 1/4"	77	
MCSE8	114611718	1,5	9,5	1,5	9,5	1000	↻	0,850	pag. 7	9	⊘ F 1/4"	77	
MCSE10	114611720	1,5	12	1,5	12	500	↻	0,850	pag. 7	9	⊘ F 1/4"	77	
MCY7-1	116311701	6	13	4,6	13	1700	↻	1,100	pag. 8	10	⊘ F 1/4"	76	
MCY9-1	116311702	7	18	6	16	750	↻	1,300	pag. 8	10	⊘ F 1/4"	76	
MCY11-1	116311703	7	25	6	22	500	↻	1,300	pag. 8	10	⊘ F 1/4"	76	
MCZE2R	112511722	0,8	2,8	0,8	2,5	2800	↻	0,790	pag. 8	7	⊘ F 1/4"	72	
MCZE3R	112511723	1	3,3	0,8	3	1300	↻	0,800	pag. 8	7	⊘ F 1/4"	72	
MCZE4R	112511724	1	3,5	0,8	3,3	850	↻	0,800	pag. 8	7	⊘ F 1/4"	72	
MCZE5R	112511725	0,8	4,7	0,6	4,2	600	↻	0,800	pag. 8	7	⊘ F 1/4"	72	
MCSE4R	114811714	1	5,8	1	5,8	2500	↻	0,780	pag. 9	9	⊘ F 1/4"	77	
MCSE5R	114811715	1,5	7,5	1,5	7,5	1500	↻	0,870	pag. 9	9	⊘ F 1/4"	77	
MCSE8R	114811718	1,5	9,5	1,5	9,5	1000	↻	0,870	pag. 9	9	⊘ F 1/4"	77	
MCSE10R	114811720	1,5	12	1,5	12	500	↻	0,870	pag. 9	9	⊘ F 1/4"	77	
MCY7R-1	116511701	6	13	4,5	13	1600	↻	1,100	pag. 9	10	⊘ F 1/4"	84	
MCY9R-1	116511702	7	18	6	16	700	↻	1,300	pag. 9	10	⊘ F 1/4"	84	
MCY11R-1	116511703	7	25	6	22	450	↻	1,300	pag. 9	10	⊘ F 1/4"	84	
MSCZE2	112311222	0,8	2,8	0,8	2,5	2800	⬇	0,720	pag. 10	7	⊘ F 1/4"	72	
MSCZE3	112311223	1	3,3	0,8	3	1300	⬇	0,730	pag. 10	7	⊘ F 1/4"	72	
MSCZE4	112311224	1	3,5	0,8	3,3	850	⬇	0,730	pag. 10	7	⊘ F 1/4"	72	
MSCZE5	112311225	0,8	4,7	0,6	4,2	600	⬇	0,730	pag. 10	7	⊘ F 1/4"	72	
MSCSE4	114611214	1	5,8	1	5,8	2500	⬇	0,910	pag. 10	9	⊘ F 1/4"	77	
MSCSE5	114611215	1,5	7,5	1,5	7,5	1500	⬇	0,920	pag. 10	9	⊘ F 1/4"	77	
MSCSE8	114611218	1,5	9,5	1,5	9,5	1000	⬇	0,920	pag. 10	9	⊘ F 1/4"	77	
MSCSE10	114611220	1,5	12	1,5	12	500	⬇	0,920	pag. 10	9	⊘ F 1/4"	77	

The models are suitable for tightening and untightening operations
 Screw rotation clockwise

PUSH TO START DIRECT START

The models highlighted in green are usually available from stock.

- The figures shown are measured at a pressure of 6,3 bar (ISO 2787), the recommended operating pressure
- The 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
- Accessory drive: 1/4", 6,35 mm female hexagonal drive (ISO 1173)
- The code number must be used when ordering

The torque values are to be considered purely indicative and may be influenced by the softness of the type of joint, the type and length of the screw, the pressure and quantity of the feeding air, etc. In order to ensure the best performances and long life of air nutrunner motors, in particularly harsh work conditions (high number of cycles per minute and/or high torque values), we advise using motors with a torque no more than 80% higher (indicative value) than the maximum indicated in the table. For all further details, please apply to the **Fiam Technical Assistance Service**.

The values indicated for sound pressure 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.

The operator exposed to a noise levels must use the personal safety devices (earmuffs, ear plugs, etc), to safeguard himself against inherent risks.

Chart of torque range obtainable with clutch springs assembled on the tool or supplied with

MODELS	TORQUE RANGE		TORQUE RANGE		TORQUE RANGE		TORQUE RANGE	
	Hard Joint	Soft joint	Hard Joint	Soft joint	Hard Joint	Soft joint	Hard Joint	Soft joint
	Assembled on the tool BROWN clutch spring ⊘ wire 1,6 mm Code 595201600		Supplied with BROWN clutch spring ⊘ wire 2 mm Code 595202000		Supplied with SILVER clutch spring ⊘ wire 2,1 mm Code 595202100		Supplied with GOLD clutch spring ⊘ wire 2,2 mm Code 595202200	
MCZE2	0,8+2,8	0,8+2,5						
MCZE3	1+2,5	0,8+2,2	1,8+3,3	1,8+3				
MCZE4	1+2,4	0,8+2,5			2,5+3,5	2+3,3		
MCZE5	0,8+2	0,6+1,9					1,4+4,7	1+4,2
	Assembled on the tool WHITE clutch spring ⊘ wire 2,5 mm Code 595102502		Supplied with LIGHT BLUE clutch spring ⊘ wire 1,5 mm Code 595101509		Supplied with PINK clutch spring ⊘ wire 2 mm Code 595102006		Supplied with RED clutch spring ⊘ wire 3,5 mm Code 595103504	
MCSE4	3+5,8	3+5,8	1+3,2	1+3,2				
MCSE5	3+7,5	3+7,5			1,5+5	1,5+4,5		
MCSE8	1,5+4,5	1,5+4,5					3,5+9,5	3,5+9,5
MCSE10	1,5+4,5	1,5+4,5					3,5+12	3,5+12
	Assembled on the tool WHITE clutch spring ⊘ wire 2,5 mm Code 595102502		Assembled on the tool RED clutch spring ⊘ wire 3,5 mm Code 595103504					
MCY7-1	6+13	4,6+13						
MCY9-1			7+18	6+16				
MCY11-1			7+25	6+22				
	Assembled on the tool BROWN clutch spring ⊘ wire 1,6 mm Code 595201600		Supplied with PINK clutch spring ⊘ wire 2 mm Code 595202000		Supplied with SILVER clutch spring ⊘ wire 2,1 mm Code 595202100		Supplied with GOLD clutch spring ⊘ wire 2,2 mm Code 595202200	
MCZE2R	0,8+2,8	0,8+2,5						
MCZE3R	1+2,5	0,8+2,2	1,8+3,3	1,8+3				
MCZE4R	1+2,4	0,8+2,5			2,5+3,5	2+3,3		
MCZE5R	0,8+2	0,6+1,9					1,4+4,7	1+4,2
	Assembled on the tool WHITE clutch spring ⊘ wire 2,5 mm Code 595102502		Supplied with LIGHT BLUE clutch spring ⊘ wire 1,5 mm Code 595101509		Supplied with PINK clutch spring ⊘ wire 2 mm Code 595102006		Supplied with RED clutch spring ⊘ wire 3,5 mm Code 595103504	
MCSE4R	3+5,8	3+5,8	1+3,2	1+3,2				
MCSE5R	3+7,5	3+7,5			1,5+5	1,5+4,5		
MCSE8R	1,5+4,5	1,5+4,5					3,5+9,5	3,5+9,5
MCSE10R	1,5+4,5	1,5+4,5					3,5+12	3,5+12
	Assembled on the tool WHITE clutch spring ⊘ wire 2,5 mm Code 595102502		Assembled on the tool RED clutch spring ⊘ wire 3,5 mm Code 595103504					
MCY7R-1	6+13	4,6+13						
MCY9R-1			7+18	6+16				
MCY11R-1			7+25	6+22				
	Assembled on the tool BROWN clutch spring ⊘ wire 1,6 mm Code 595201600		Supplied with PINK clutch spring ⊘ wire 2 mm Code 595202000		Supplied with SILVER clutch spring ⊘ wire 2,1 mm Code 595202100		Supplied with GOLD clutch spring ⊘ wire 2,2 mm Code 595202200	
MSCZE2	0,8+2,8	0,8+2,5						
MSCZE3	1+2,5	0,8+2,2	1,8+3,3	1,8+3				
MSCZE4	1+2,4	0,8+2,5			2,5+3,5	2+3,3		
MSCZE5	0,8+2	0,6+1,9					1,4+4,7	1+4,2
	Assembled on the tool WHITE clutch spring ⊘ wire 2,5 mm Code 595102502		Supplied with LIGHT BLUE clutch spring ⊘ wire 1,5 mm Code 595101509		Supplied with PINK clutch spring ⊘ wire 2 mm Code 595102006		Supplied with RED clutch spring ⊘ wire 3,5 mm Code 595103504	
MSCSE4	3+5,8	3+5,8	1+3,2	1+3,2				
MSCSE5	3+7,5	3+7,5			1,5+5	1,5+4,5		
MSCSE8	1,5+4,5	1,5+4,5					3,5+9,5	3,5+9,5
MSCSE10	1,5+4,5	1,5+4,5					3,5+12	3,5+12

Air nutrunner motors

Other technical features

Models	Air inlet	Recommended hose bore
MCZE...	1/8" gas	Ø 5 mm
MCSE...	1/4" gas	Ø 8 mm
MCY...-1	1/4" gas	Ø 8 mm
MCZE...R	1/8" gas	Ø 5 mm
MCSE...R	1/4" gas	Ø 8 mm
MCY...R-1	1/4" gas	Ø 8 mm
MSCZE...	1/8" gas	Ø 5 mm
MSCSE...	1/4" gas	Ø 8 mm

Standard equipment (supplied with the tool)

- Clutch adjustment key
- Supplementary clutch spring
- Use and maintenance manual
- Eco-friendly packaging

Models available upon request

- Models with quick change chuck
- Models with modified flange and/or with customized casing
- Models without clutch with stall function

Accessories

- Bits, sockets etc., compressed air system accessories and other accessories: see Accessories Catalogue.

Axial compensation bits

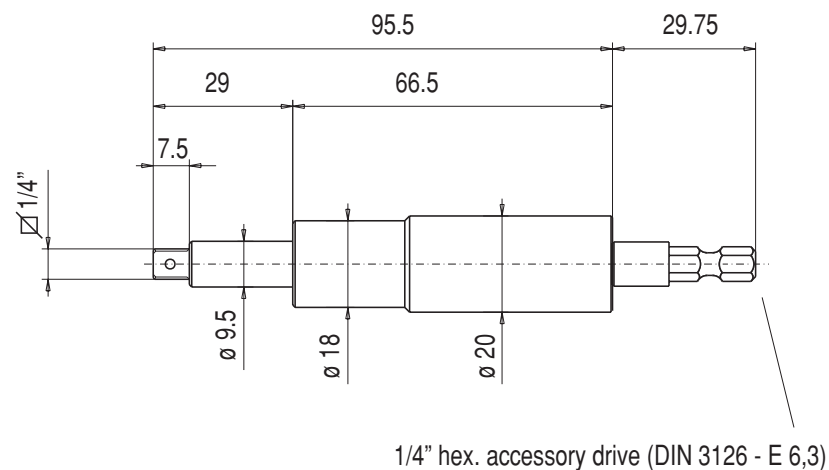
Facilitates entry of screw and reduces axial stress on the motor's mechanical components. When it is necessary to drive in more than one screw simultaneously, the axial compensation device in the bit compensates for the differences in height between the screws at the start of the screwdriving phase. These bits are supplied complete with a guide bush to ensure the compensation bit is centred correctly on the screwdriver. The bit can be used in conjunction with the accessories illustrated in the Accessories Catalogue, fitting a specific adapter between the bit and accessory if required. The spring load of the axial compensation bits is about 3,5 Kg at the end of stroke.

To use axial compensators on air nutrunner motors with push start please apply to **Fiam Technical Assistance Service**.

The dimensions of the air nutrunner motors with axial compensation are those reported on page 12, 13 and 14.

1/4" □ drive axial compensation bits (Din3121-F 6,3)

Features	Code	Axial compensation (mm)
For nutrunner motors MCZE... MCZE...R MSCZE...	680601090	20

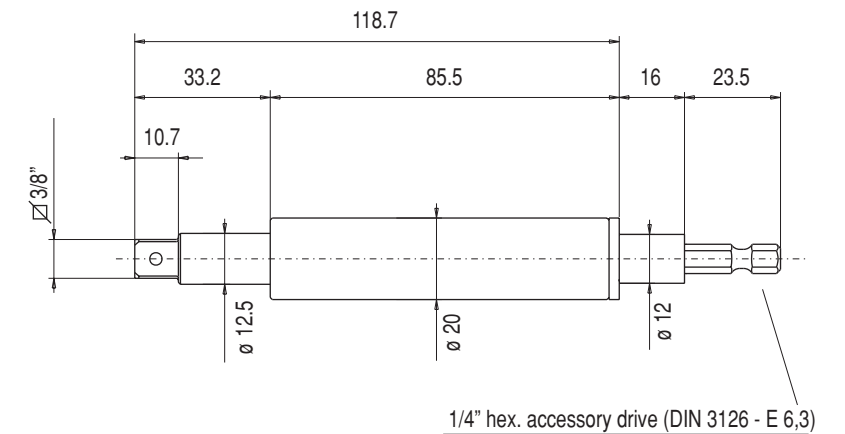


1/4" hex. accessory drive (DIN 3126 - E 6,3)

Accessories

Features	Code	Axial compensation (mm)
For right and reversible nutrunner motors	680601070	20

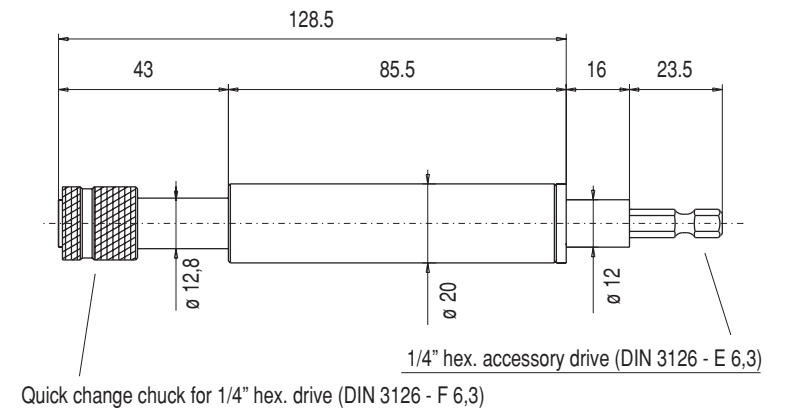
3/8" □ drive axial compensation bits (Din3121-F 10)



1/4" hex. accessory drive (DIN 3126 - E 6,3)

Axial compensation bits with 1/4" □ quick change chuck (Din3126-E6,3)

Features	Code	Axial compensation (mm)
For right and reversible nutrunner motors	680601080	20

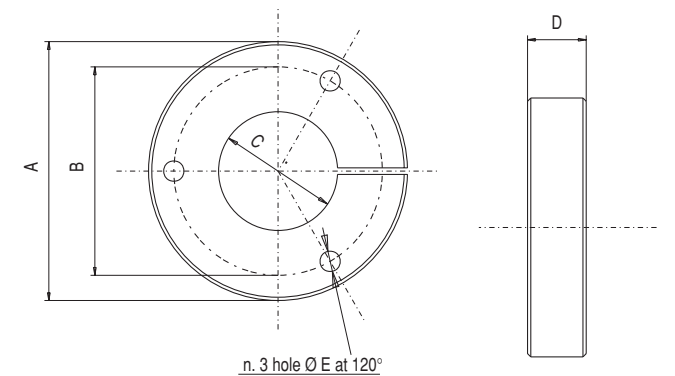


Quick change chuck for 1/4" hex. drive (DIN 3126 - F 6,3)

Flange bracket

It is best to use the 3 hole flange bracket to install a nutrunner motor for screwdriving applications on a fixed mounting, since it acts on the entire circumference of the motor casing, avoiding the possibility of any operating problems.

Flange bracket

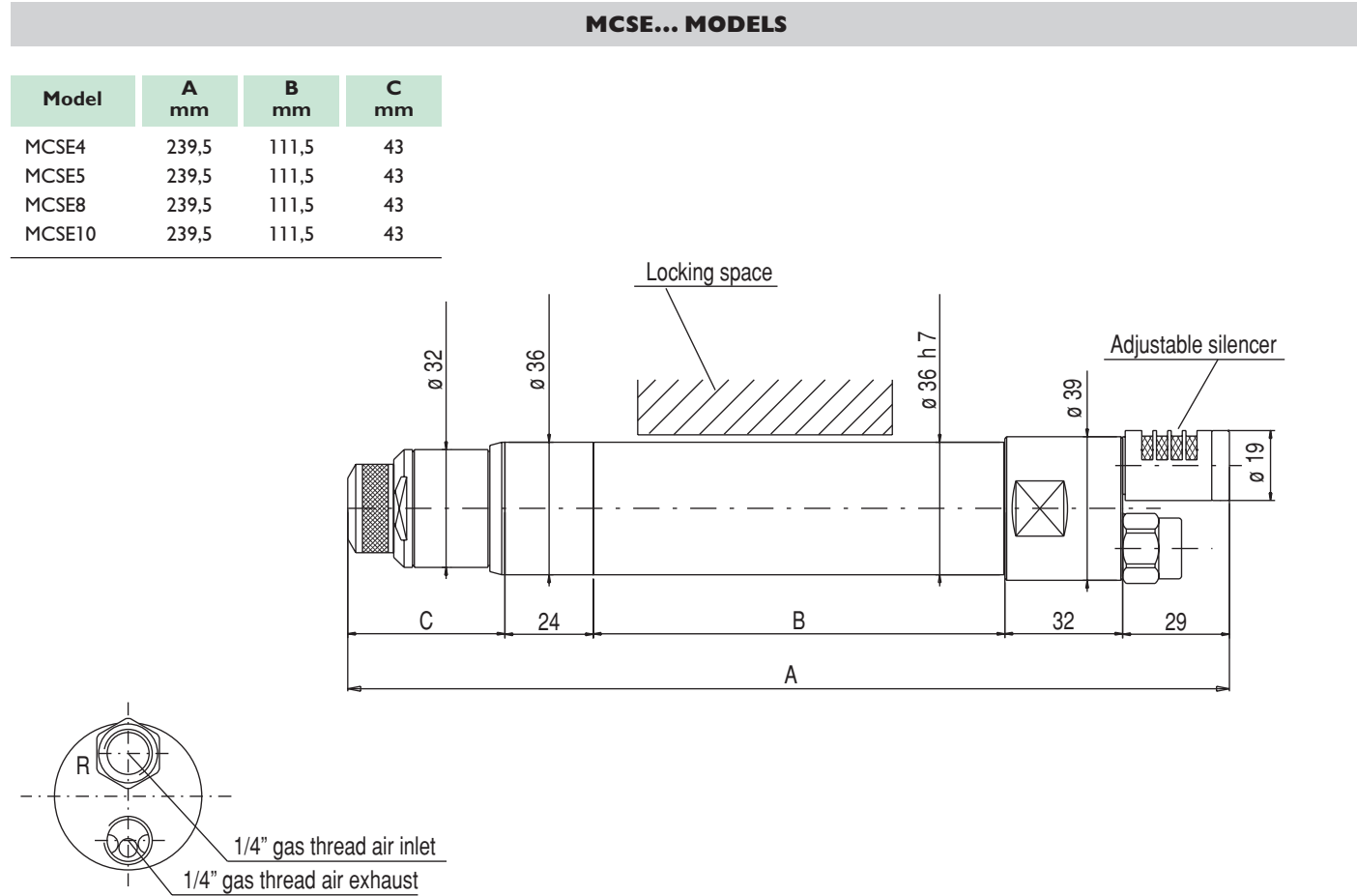
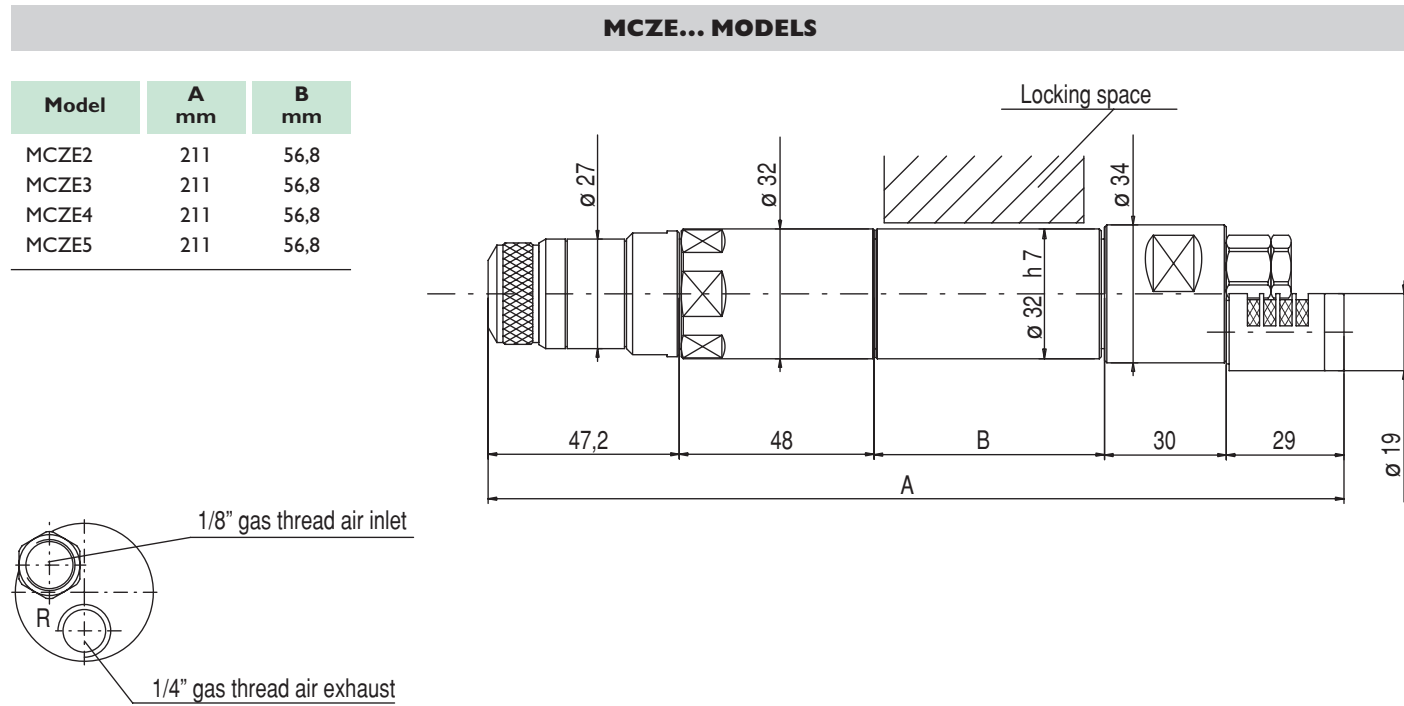


Model	Code	A mm	B mm	C mm	D mm	E mm
MCZE...; MCZE...R; MSCZE...	684011006	64,5	50	32	18	5,25
MCSE...; MCSE...R; MSCSE...	684011007	69,5	57	36	18	6,25
MCY...-1; MCY...R-1	684011008	79,5	64	42,5	18	6,25

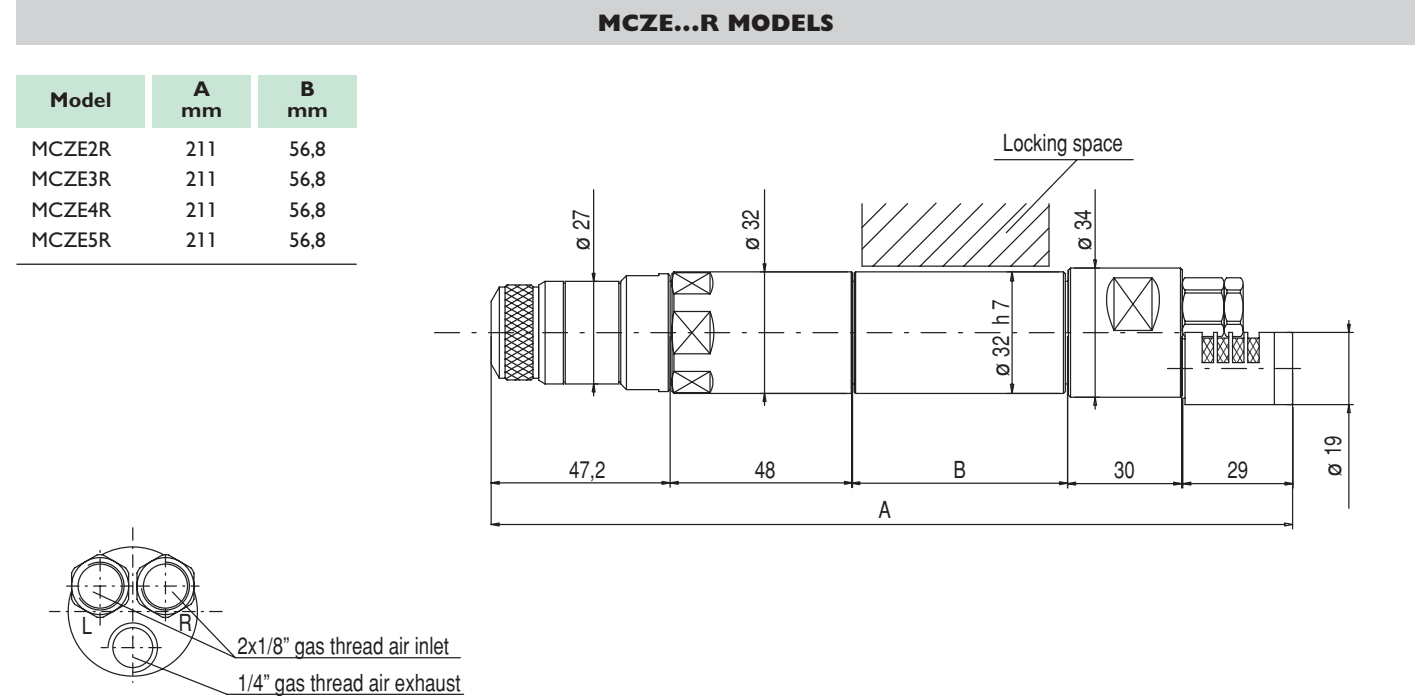
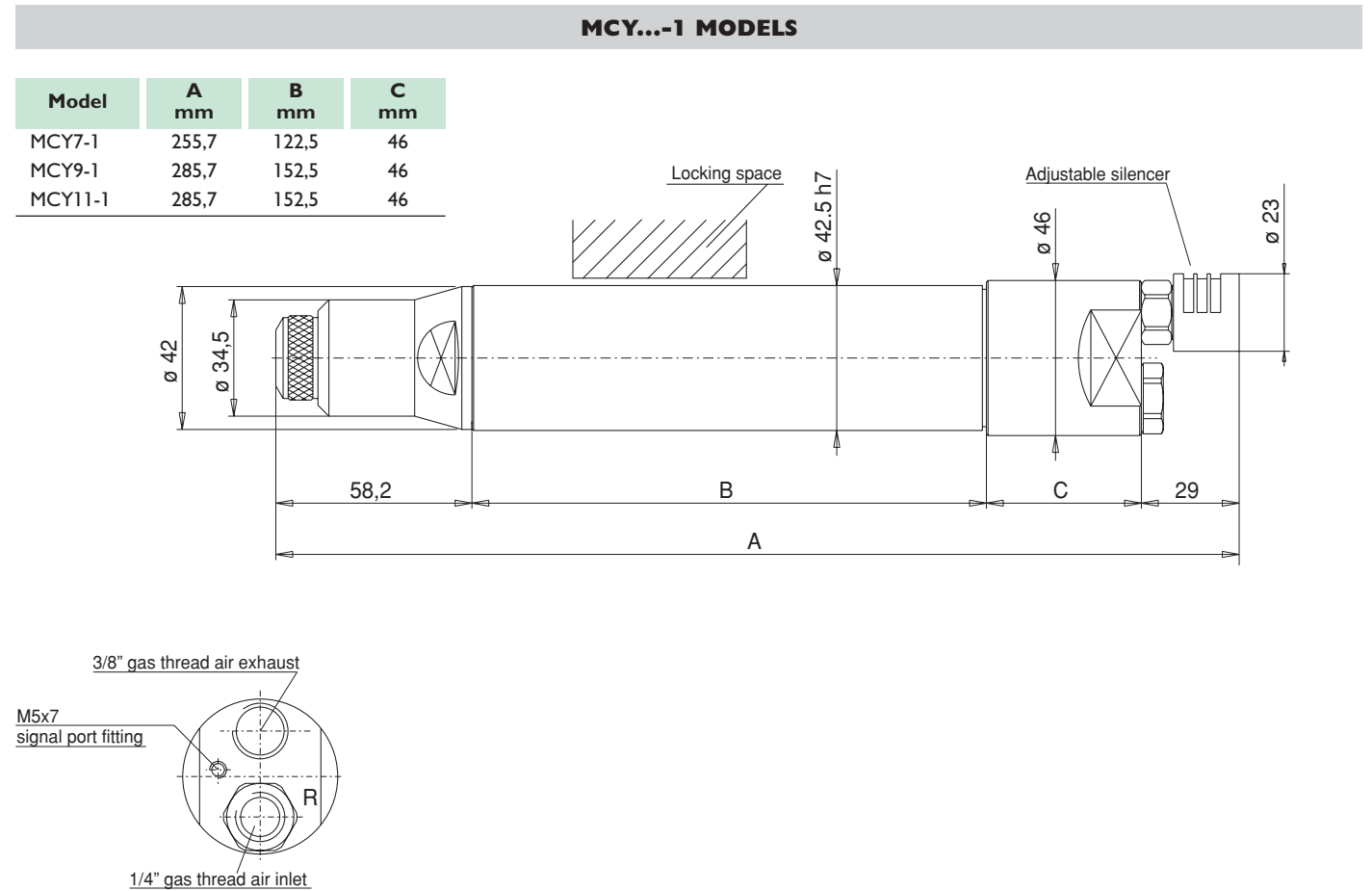
The models highlighted in green are usually available from stock.

Air nutrunner motors

Air nutrunner motors dimensions



Air nutrunner motors dimensions

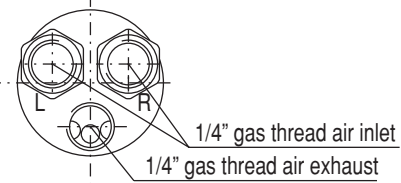
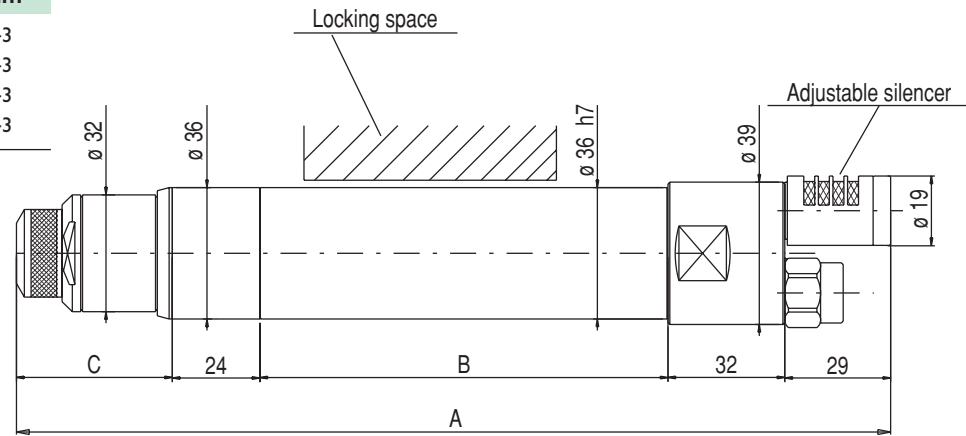


Air nutrunner motors

Air nutrunner motors dimensions

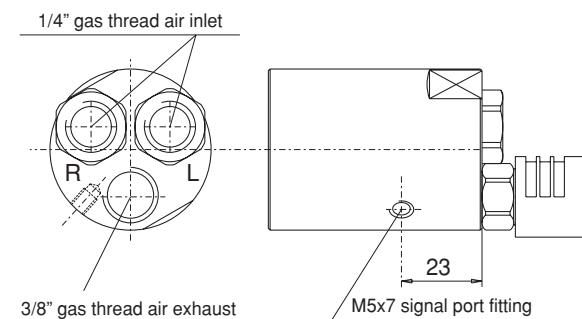
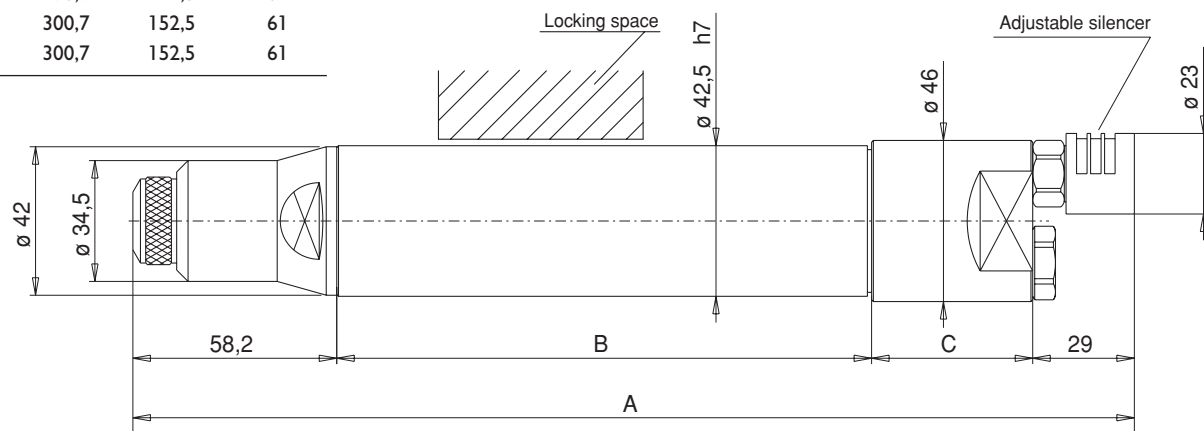
MCSE...R MODELS

Model	A mm	B mm	C mm
MCSE4R	239,5	111,5	43
MCSE5R	239,5	111,5	43
MCSE8R	239,5	111,5	43
MCSE10R	239,5	111,5	43



MCY...R-1 MODELS

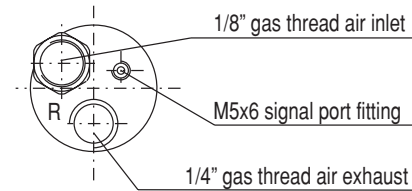
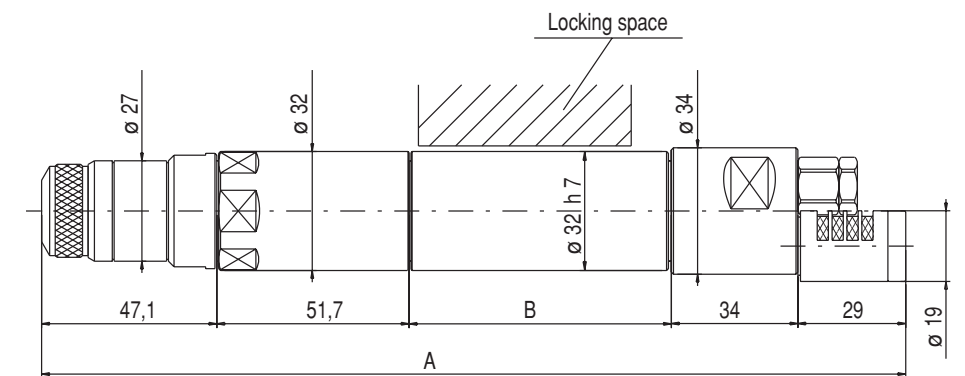
Model	A mm	B mm	C mm
MCY7R-1	270,7	122,5	61
MCY9R-1	300,7	152,5	61
MCY11R-1	300,7	152,5	61



Air nutrunner motors dimensions

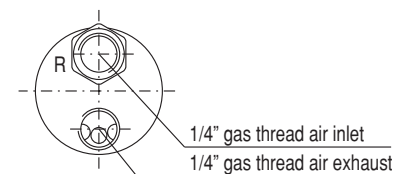
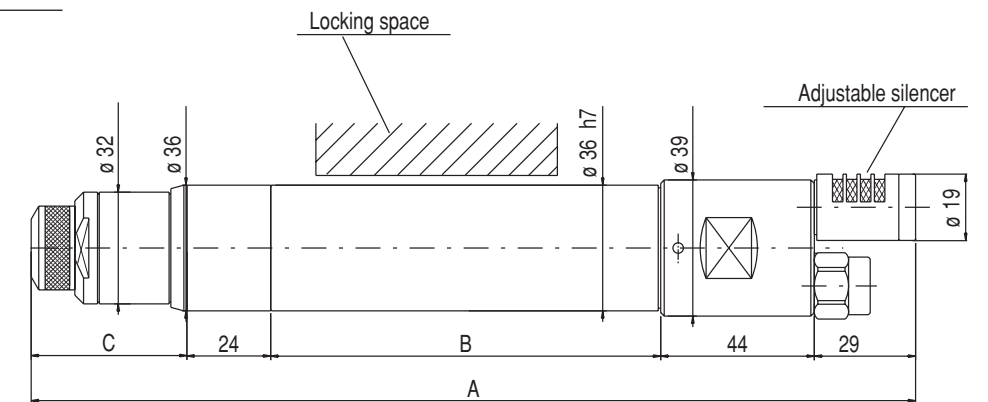
MSCZE... MODELS

Model	A mm	B mm
MSCZE2	232,3	70,5
MSCZE3	232,3	70,5
MSCZE4	232,3	70,5
MSCZE5	232,3	70,5



MSCSE... MODELS

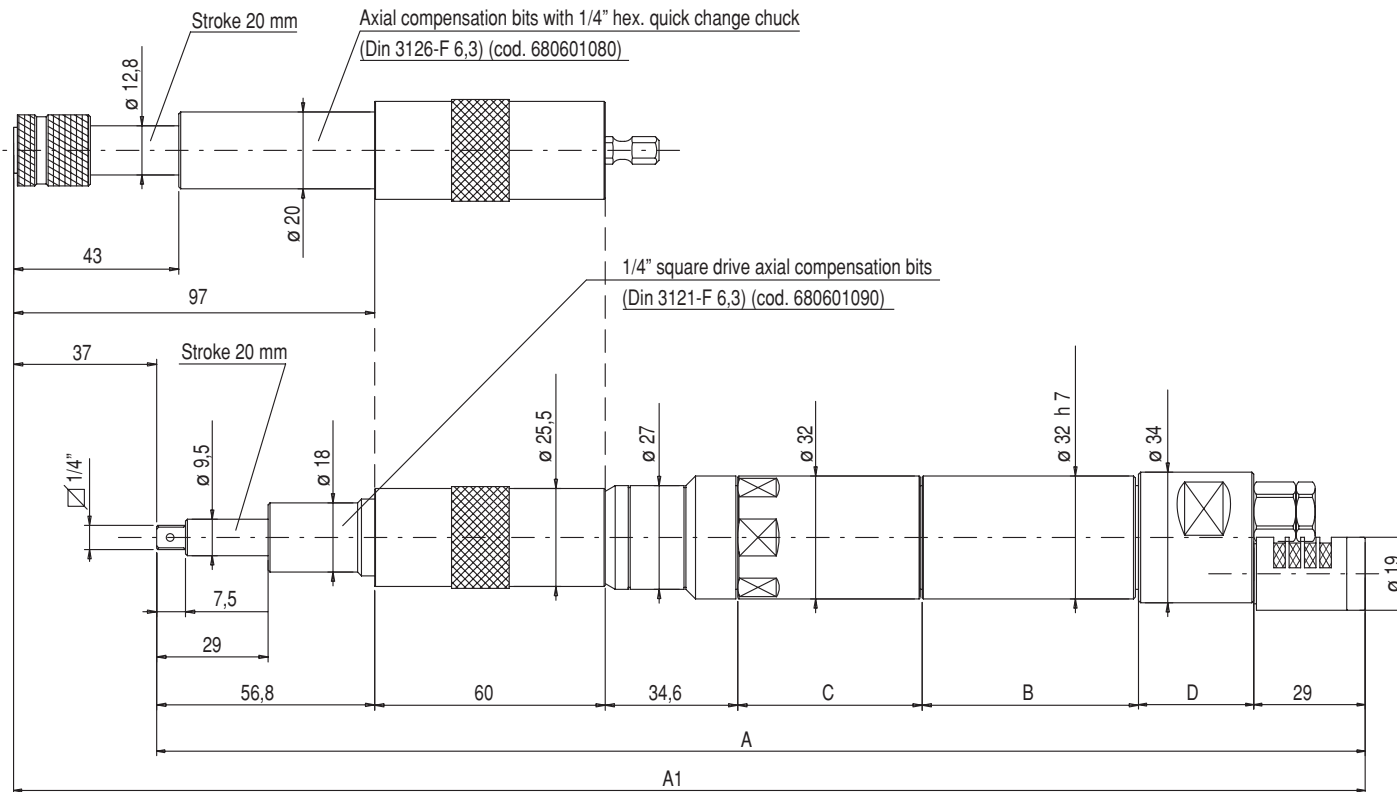
Model	A mm	B mm	C mm
MSCSE4	253	111,5	44,5
MSCSE5	253	111,5	44,5
MSCSE8	253	111,5	44,5
MSCSE10	253	111,5	44,5



Air nutrunner motors

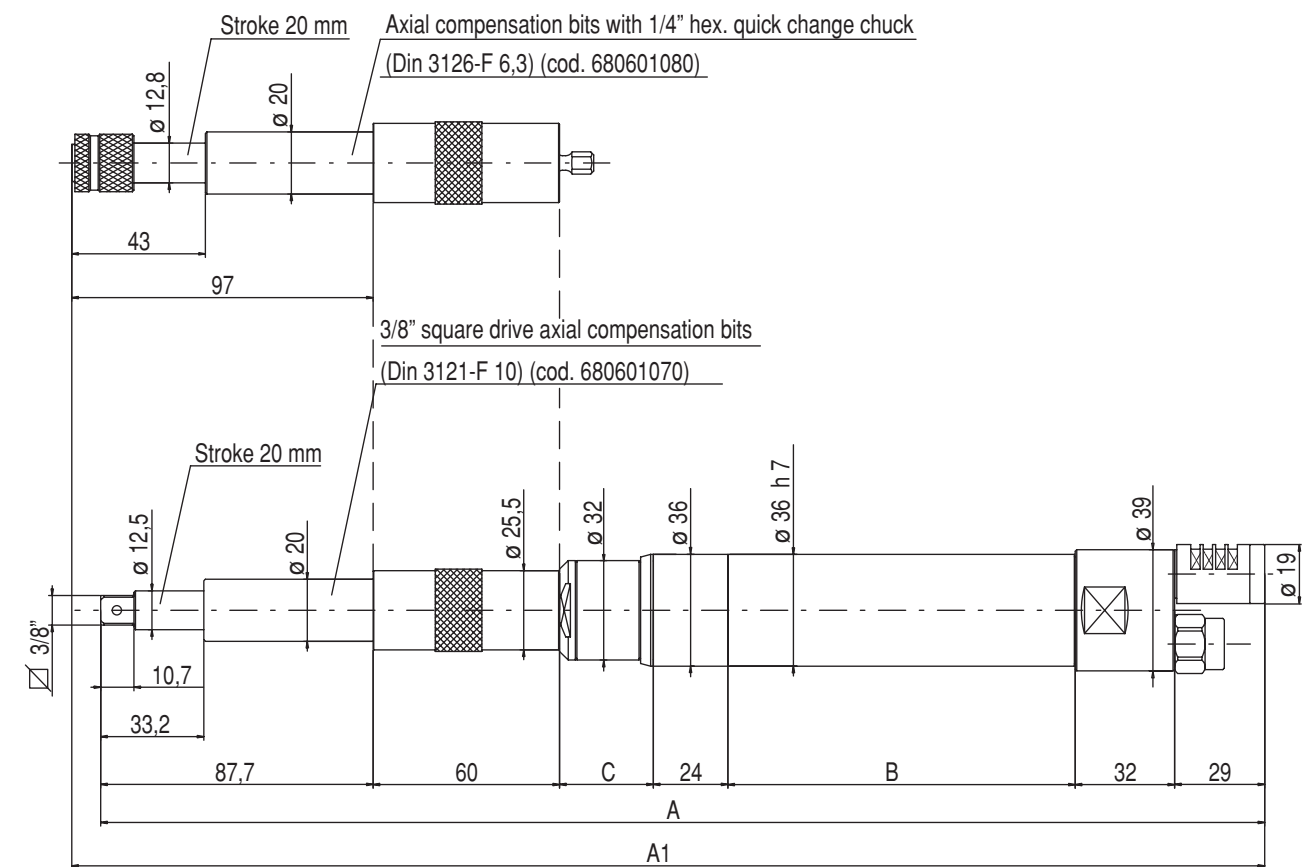
Dimensions of MCZE..., MCZE...R, MSCZE... air nutrunner motors with axial compensation

Model	A mm	A1 mm	B mm	C mm	D mm
MCZE2	315,2	352,2	56,8	48	30
MCZE3	315,2	352,2	56,8	48	30
MCZE4	315,2	352,2	56,8	48	30
MCZE5	315,2	352,2	56,8	48	30
MCZE2R	315,2	352,2	56,8	48	30
MCZE3R	315,2	352,2	56,8	48	30
MCZE4R	315,2	352,2	56,8	48	30
MCZE5R	315,2	352,2	56,8	48	30
MSCZE2	336,6	376,8	70,5	51,7	34
MSCZE3	336,6	376,8	70,5	51,7	34
MSCZE4	336,6	376,8	70,5	51,7	34
MSCZE5	336,6	376,8	70,5	51,7	34



Dimensions of MCSE..., MCSE...R, MSCSE... air nutrunner motors with axial compensation

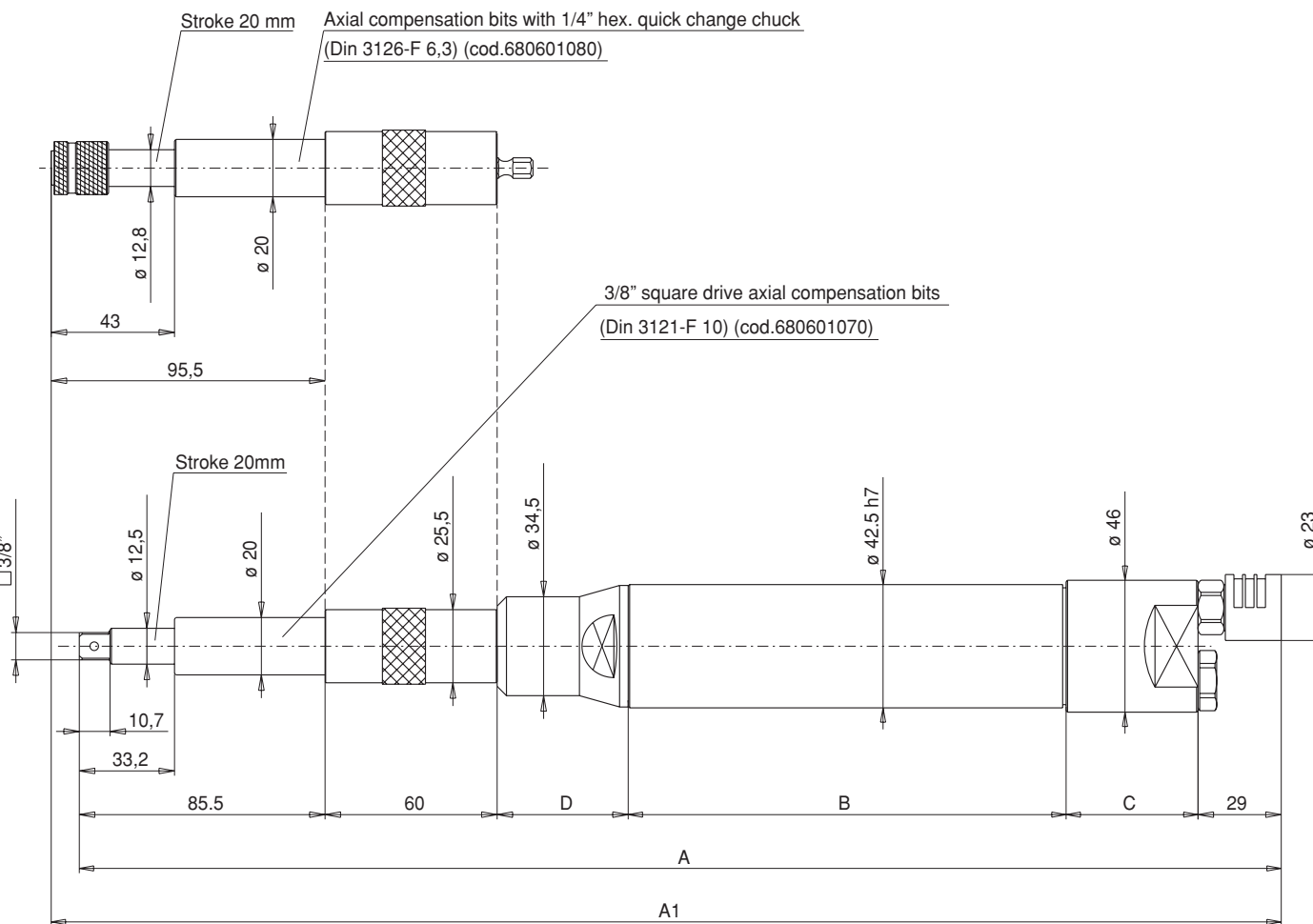
Model	A mm	A1 mm	B mm	C mm
MCSE4	374	383,5	111,5	30
MCSE5	374	383,5	111,5	30
MCSE8	374	383,5	111,5	30
MCSE10	374	383,5	111,5	30
MCSE4R	374	383,5	111,5	30
MCSE5R	374	383,5	111,5	30
MCSE8R	374	383,5	111,5	30
MCSE10R	374	383,5	111,5	30
MSCSE4	379	388,5	111,5	35
MSCSE5	379	388,5	111,5	35
MSCSE8	379	388,5	111,5	35
MSCSE10	379	388,5	111,5	35



Air nutrunner motors

Dimensions of MCY...-1, MCY...R-1 air nutrunner motors with axial compensation

Model	A mm	A1 mm	B mm	C mm	D mm
MCY7-1	388,7	398,7	122,5	46	45,7
MCY9-1	418,7	428,7	152,5	46	45,7
MCY11-1	418,7	428,7	152,5	46	45,7
MCY7R-1	403,7	413,7	122,5	61	45,7
MCY9R-1	433,7	443,7	152,5	61	45,7
MCY11R-1	433,7	443,7	152,5	61	45,7

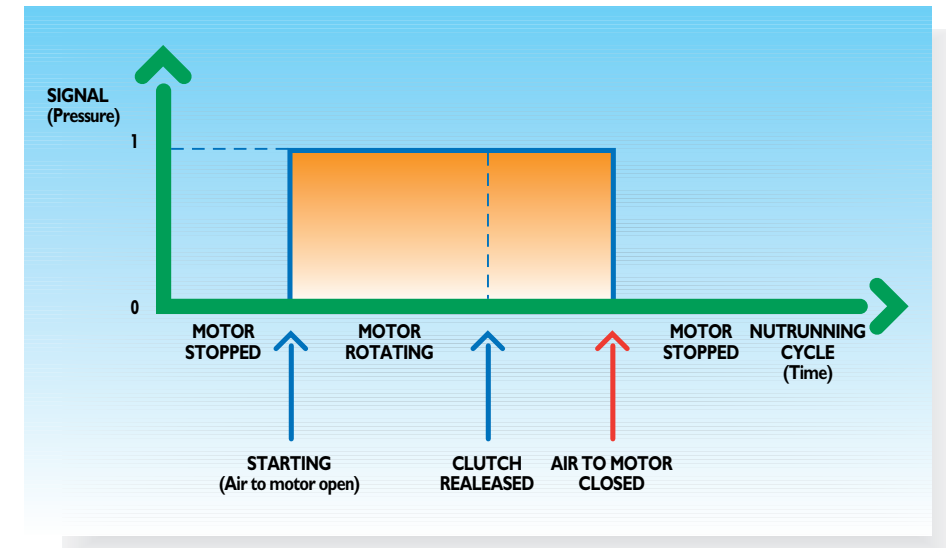


Instructions for installation

1 Signal that may be received

Motors with UNI JOINTECH clutch (slip clutch)

The push start models and some direct start models are provided with an M5 threaded hole from which it is possible to pick-up a pressure signal when the motor is running (rotating). At rest, with the motor stopped and in the absence of feeding air pressure, the signal is zero (0). When the motor is rotating the signal is one (1) (pressure present). Upon the reaching the preset torque the clutch is engaged.



Motors with direct start

The motors are started by means of a pneumatic valve with remote control: a three-way valve for motors with right hand rotation only and a five-way valve for reversible motors with two feeding inputs.

Motors with push start

The motor is always fed and to start it all that is required is to exert a pressure of 2-3 kg. on the tool. This type of start is not advisable on multi-spindle nutrunners hanging from the balancer, so as not to require high

pushing force by the operator. **N.B.:** When using fastening slides, in-depth controls may be obtained by suitably adjusting the bottom limit switch of the slide. For further details, please apply to the **Fiam Technical Assistance Service.**

2 Securing the nutrunner motors

The motors must be secured on the sleeve which has a tolerance diameter h7 by means of a system of clamps or a flanged system.

To adjust the height, proceed as follows:

- Position the motor on top of a piece that has already been tightened on, with the tool inserted in the screw housing;
- Position the slide with the open clamps or the open flanges against the bottom limit switch;
- Move the motor forward towards the piece until the motor air valve is completely open (3 mm);
- Move the motor back about 0.5 mm and block the clamps or the flanges.

It is advisable to insert an axial compensator (see pages 5 and 6) between the motor and the tool; this avoids high thrusts on the internal parts of the motor when using pneumatic slides; it can also compensate different height positions of the screws. For the use of axial compensator on motors with push start, please apply to the **Fiam Technical Assistance Service.**

Instructions for installation

3 Adjusting the tightening torque

The operating procedures are listed in the instructions manual supplied with the motor.

4 Changing the tool

All nutrunner motors are fitted with devices to prevent accidental dropping of the tool. To remove or insert a tool, proceed as follows:

Models with direct start

- Almost completely unscrew the clutch cover;
- Move the clutch towards the motor, inserting a screwdriver in the slot in the cover;
- Remove or fit the tool;
- Screw the cover completely on again.

Models with push start

- Cut off the compressed air feed;
- Move and push the clutch towards the motor, inserting a screwdriver in the slot in the cover;
- Remove the tool;
- Release the clutch by taking out the screwdriver;
- Insert the new tool;
- Feed the compressed air again.

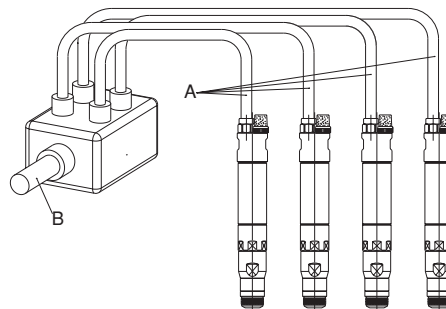
5 Air feed

To obtain the performances indicated in the catalogue for the various motors, it is necessary to guarantee correct air feed. To check whether the nutrunner is being correctly fed, insert a pressure gauge at the air inlet coupling and measure the air pressure with the motor running: it must be about 6 bar. Always respect the air passage recommended by Fiam for feeding hoses.

For multispindle nutrunners, always provide distributors with a sufficient tank capacity, located near the motors.

If possible, avoid joints and quick couplings which locally reduce the air passage.

For further details, please apply to the **Fiam Technical Assistance Service**.



A FEED HOSES

Air bore minimum internal diameter 5 mm and maximum length 0.5/1 m

B PRIMARY FEED HOSE

With air bore minimum internal diameter

$$D = \sqrt{n \times d^2}$$

Key:

- D Ø primary hose minimum internal diameter (B)
- d Ø motor hose minimum internal diameter (A)
- n number of tools

Fiam

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Quality Certification
UNI EN ISO 9001 / ICIM 0250

Environmental Management System Certificate
UNI EN ISO 14001 / ICIM 0002A/0

