



**Sub**, the winning edge



**FAMAR**

FAMAR. A NEW WAY OF THINKING

## 1 RELIABILITY

From design to delivery, every step is monitored and verified to offer a machine designed to **respond to the production needs of the Client with accuracy and speed**. Starting from the bedframe to the electrospindles and turrets to operational accessibility, everything is designed to offer high performance in processing, making SUB a reliable line of machines over time.

## 2 FLEXIBILITY

The flexibility of SUB allows you to set the **ideal configuration** to meet the production needs of the Client, adapting their characteristics for **insertion in the intended working cycle**.

It is a process that Famar develops with a feasibility study, customization of the machine, pre-testing at Famar and at the Client's premises, assistance and support after installation.

## 3 CUSTOMIZATION

The SUB range offers absolute customization, even for the most diverse production requirements. Thanks to the various options described in this catalogue, the experience gained over the years and the design skills of our technicians, **SUB is "stitched" onto the workpiece**, complete with work-holding equipment, tools and work program creation. SUB has thus become the machine suited to meet the whole process, from the raw piece to the finished one.

# Sub, its speed at a glance



- FAMAR BEDFRAME
- FAMAR ELECTROSPINDLE
- FAMAR EXCLUSIVE TURRET
- COOLING SYSTEM
- STEEL PROTECTION
- ACCESSIBILITY



Find out more at  
[www.famargroup.com](http://www.famargroup.com)

These are models marked by **productivity and compactness**. Thanks to cutting-edge integrated automation, it is possible to achieve **loading and unloading in just 3 seconds**.

In the **biSUB** model, with two working areas, you can double production or run the complete processing of the same element in two operations.

With the **SUB Nano** model, thanks to the pendular system with double turret and double working area, the time for **loading/unloading is 0 seconds**.

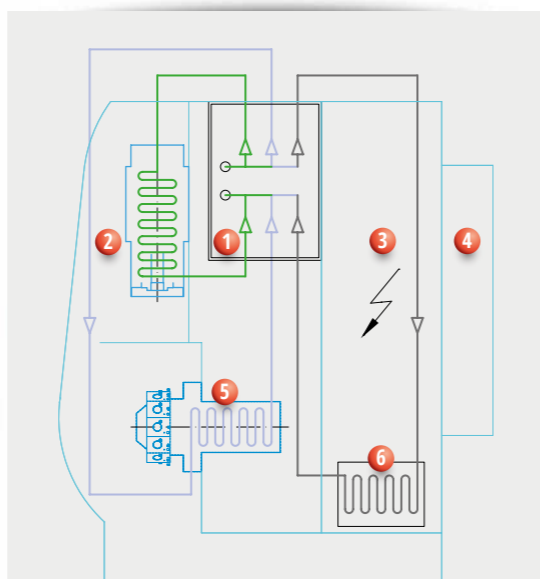


**FAMAR BEDFRAME**

Made of electro-welded and stabilised steel, filled with a special cementitious polymeric conglomerate. It is the exclusive Famar bedframe which ensures rigidity and stability at the same time high, with high absorption of vibrations produced during the machining process.

Two separate carriages (spindle carriage is mounted on one and the turret on the other) and they follow an exclusive system designed by Famar, to completely avoid the transmission of vibrations.

Sub is unique because of **Famar**



**COOLING SYSTEM**

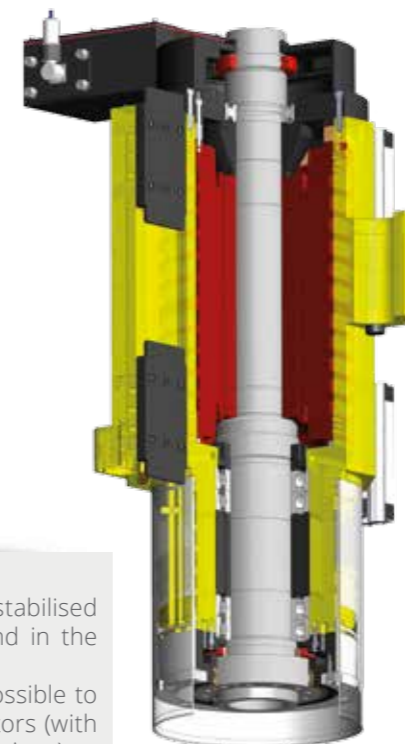
All SUB machines are equipped with heat stabilisation systems in the spindle and turret unit, as well as ancillary units when necessary.

- COOLING UNIT 1      4 COOLER
- MAIN SPINDLE 2      5 TURRET
- ELECTRICAL CABINET 3      6 HEAT EXCHANGER

**EXCLUSIVE FAMAR TURRET**

The Famar turret, complete system for heat stabilisation, is directly flanged on the bedframe. It is particularly rigid and allows heavy machining with a homogeneous subdivision of the shear stress.

The solution of the turret with motorised tools is unique: thanks to an innovative solution (which eliminates the use of gears and bevel gears) the tools are moved by a torque motor directly on the axis, allowing for torque, power and number of revolutions up to three times more than those attainable with the best turrets on the market. The high pressure coolant through the tools complete the solution making it unbeatable.



**FAMAR ELECTRO-SPINDLE**

All Famar electrospindles are heat-stabilised both in the area of the bearings and in the vicinity of the motor.

On the basis of the SUB size, it is possible to install induction or synchronous motors (with high torque at a low number of revolutions).

For the "C" axis all the spindles have a hydraulic braking system to ensure rigidity for processing.

This device greatly increases the efficiency of the system and ensures optimum rigidity.

In addition, a direct measuring system ensures precise positioning.



**STEEL PROTECTION**

The SUB machines prevent chips escaping from the working area, avoiding errors of loading or accidental wear of the main bodies of the machine.

This is done through complete isolation of the working area from the linear guides, ball screws and control bodies.

and with exclusive performance

**ACCESSIBILITY**

The working areas and numerical control unit are located in a small space, so as to have the entire production process under control.



precision and speed

with double productivity



**SUB 160 2g**

The fastest model on the market for the production of parts up to 120 mm. Record time in mass production. Loading and unloading of workpiece in just 3 seconds. Small size and easy accessibility.



**biSUB 160 2g**

More autonomy and flexibility in addition to high speed. Two working areas to double processing or to work in two operations.



The spindle locks the piece



The spindle "dips" into the machine



The processing starts



The spindle comes out of the working area



Unloading the workpiece



Loading a new blank

**AUTOMATIC LOADING-UNLOADING**

The loading and unloading on the SUB, biSUB and SUB Nano machines is done through a system with CN pallets. The pallets, with special quick coupling, facilitate and speed up the change type.

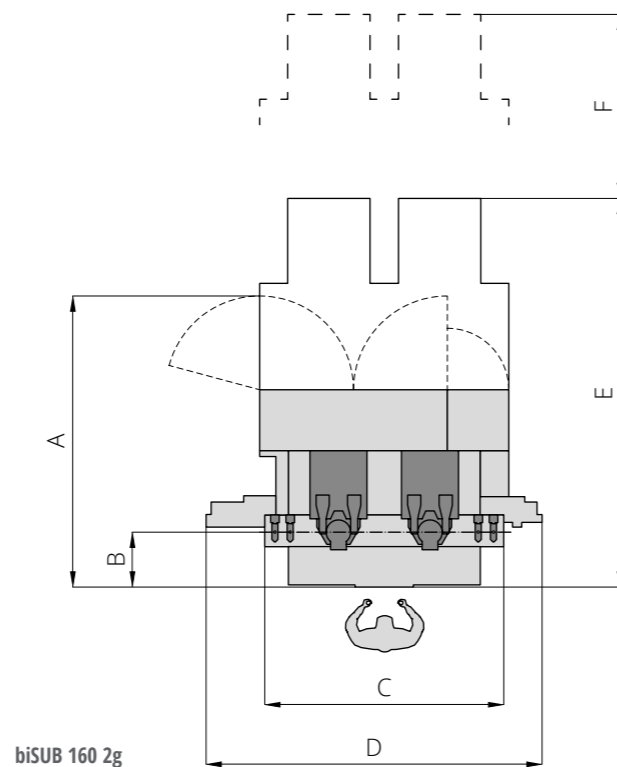
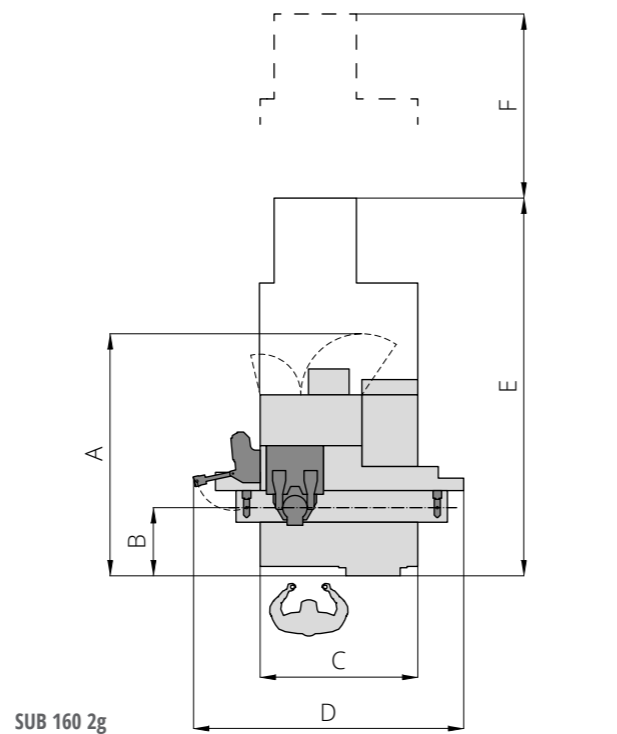


# technical characteristics

Machine Model SUB		SUB 160	biSUB 160
<b>TURNING CAPACITY</b>			
Turning diameter	mm	120	120
Swing diameter	mm	180	180
Turning length	mm	120	120
Standard chuck diameter	mm	160	160
Max chuck diameter	mm	160	160
<b>AXES</b>			
Total stroke X axis	mm	180	180
Total stroke Z axis	mm	430	430
Machining stroke Z axis	mm	135	135
Rapid speed X axis	m/1'	60	60
Rapid speed Z axis	m/1'	90	90
Ballscrew diameter X axis	mm	40	40
Ballscrew diameter Z axis	mm	40	40
S3-25% Thrust X axis	kN	6,3	6,3
S3-25% Thrust Z axis	kN	6,7	6,7
<b>MAIN SPINDLE</b>			
Spindle nose ISO 702-1	size	5	5
Front bearing Ø	mm	90	90
Max speed	Rpm	7000	7000
Max power	kW	10/16.8	10/16.8
Max torque	Nm	76.5/150	76.5/150
<b>TOOLS DRIVEN TURRET FAMAR</b>			
Max speed	Rpm	10000	10000
Max power	kW	12,5	12,5
Max torque	Nm	88	88
Toolholders type	VDI	40	40
Toolholders	qty.	12	12
Max. tools length	mm	190	190
Indexing time	sec	0,25	0,25
<b>GENERAL DATA</b>			
Loading/Unloading time	sec	3	3
Machine weight	Kg	6500	10000

# layout/ space required

Machine Model SUB		SUB 160	biSUB 160
<b>DIMENSIONS</b>			
A	mm	2.380	2.850
B	mm	670	540
C	mm	1.550	2.350
D	mm	2.660	3.305
E	mm	3.715	3.810
F	mm	1.500	1.550



with infinite flexibility  
of automation



### TOTAL AUTOMATION

The SUB line allows any type of customization related to automatic feeding solutions. This ensures maximum autonomy of the machine and unmatched production flexibility. From pallet line to the loop, from the flighted elevators to the column palletisation to the tending cell which are robotised and completely automatic.

**new**

## in no time

Famar has today a new technology: **SUB Nano**. Through a new concept the machine works in pendular mode with two spindles and two turrets. **During the machining of the first spindle the second spindle unloads the finish part and loads a blank one.** Otherwise, when the second spindle works, the first one unloads and loads. This sequence allows **to double the production**, also due to an experienced loading/ unloading pallet system.

The standard linear motors assure high speed with **acceleration until 2.5g**. The result of these features is a **loading and unloading record time, that is 0 sec.**

### SUB Nano p

Perfect for the production of parts up to 60 mm. Double working area and double tool holder turret to reduce the time for loading/unloading to 0 seconds.



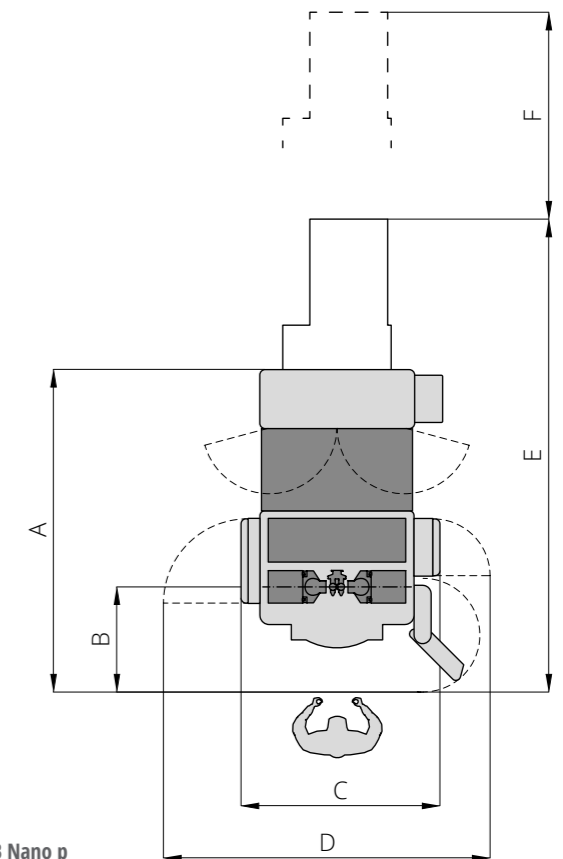
Find out more at [www.famargroup.com](http://www.famargroup.com)

## technical characteristics

Machine Model SUB	SUB Nano	
<b>TURNING CAPACITY</b>		
Turning diameter	mm	60
Swing diameter	mm	135
Turning length	mm	65
Standard chuck diameter	mm	130
Max chuck diameter	mm	130
<b>AXES</b>		
Total stroke X axis	mm	130
Total stroke Z axis	mm	290
Machining stroke Z axis	mm	80
Rapid speed X axis	m/1'	40
Rapid speed Z axis	m/1'	100
Ballscrew diameter X axis	mm	/
Ballscrew diameter Z axis	mm	/
S3-25% Thrust X axis	kN	1,3
S3-25% Thrust Z axis	kN	2,5
<b>MAIN SPINDLE</b>		
Spindle nose ISO 702-1	size	4
Front bearing Ø	mm	55
Max speed	Rpm	10000
Max power	kW	12,5
Max torque	Nm	36
<b>TOOLS DRIVEN TURRET FAMAR</b>		
Max speed	Rpm	10000
Max power	kW	12,5
Max torque	Nm	51
Toolholders type	VDI	30
Toolholders	qty.	12+12
Max. tools length	mm	115
Indexing time	sec	0,2
<b>GENERAL DATA</b>		
Loading/Unloading time	sec	0
Machine weight	Kg	4000

## layout/ space required

Machine Model SUB	SUB Nano	
<b>DIMENSIONS</b>		
A	mm	2.740
B	mm	890
C	mm	1.690
D	mm	2.770
E	mm	4.010
F	mm	2.000



SUB Nano p

### TWO PARALLEL TURRETS

Contrary to the other machines with pendular system, the SUB Nano, thanks to its two parallel turrets with 12 tool holders, extends the tool-change intervals by increasing the machine efficiency.



03/2014

Famar constantly updates its products; the data shown in this catalogue are subject to change without notice.



# FAMAR. A NEW WAY OF THINKING

Famar is the partner of choice for all your machining needs, from stand-alone machines to integrated production lines. Featuring all the benefits of Famar's international patent-protected vertical lathe—efficiency, precision, high productivity, reliability, and guaranteed assistance.



@ [info@famargroup.com](mailto:info@famargroup.com)

+39 011 9367186

Famar Srl | Viale Dei Mareschi, 50 - 10051 Avigliana (Torino) - Italia  
phone: (+39) 011 9367186 | fax: (+39) 011 9367334  
web: [www.famargroup.com](http://www.famargroup.com) | e-mail: [info@famargroup.com](mailto:info@famargroup.com)