

# Fiam NEWS

Number 113  
September 2015



## Tightening automation

### FURNITURE INDUSTRY: chair frames manufacturing

#### Customer's need:

Automatic assembly of 4 components of plastic chairs. Each component has a number of tightening points located at different heights also deep into holes. The solutions has to provide:

- manual load by the operator
- reliability of each rundown
- the possibility of future retrofit

#### Solution:

Fiam has manufactured 4 semi-automatic tightening units.

Each workstation, managed by an operator, includes:

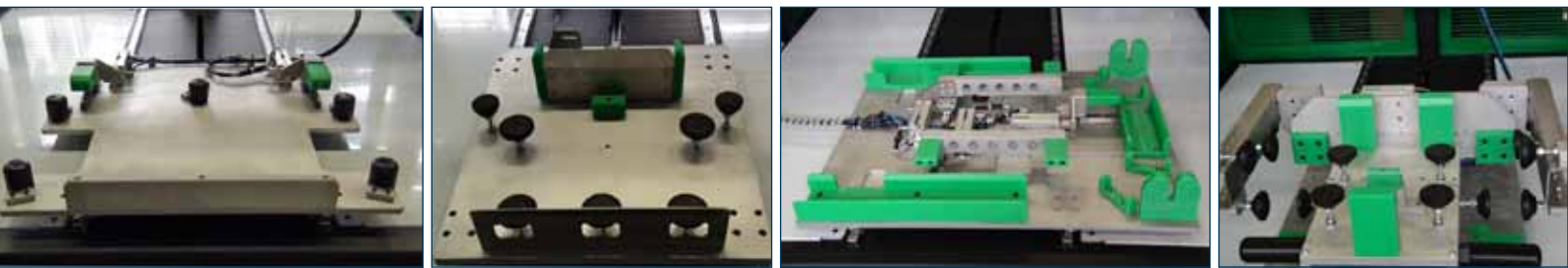
- ✘ Component customized jig, for its manual load/unload, including sensor detecting component presence
- ✘ Control panel to set and check in real time machine working parameters, displaying error messages for operator's rapid intervention



- ✘ Self-feeding tightening module made of a **double stroke fastening slide housing a DC electric** (current control) **brushless nutrunner motor**
- ✘ Tightening module moves along 3 linear axis X, Y and Z equipped with servo motors: this solution allows reaching all needed tightening points with the nosepiece
- ✘ All parameters of the tightening process are managed by TCS-B controller that, in addition to integrated motor electric feeding, programming and control of the tightening cycle, displays torque and angle values discriminating the ok/ng rundowns. You can set among 5 different control strategies of the tightening process for each of 4 programs available which can be set using the software supplied with
- ✘ Special screw heads, **featuring friction jaws** that hold the screw from the head rather than the shank: they allow the head to insert inside deep and tight tightening spots
- ✘ Screw feeding and escapement system. Thanks to the continuous screw feeding and to the high bowl feeder capacity, allow faster and more efficient assembly operations



## 4 machines, 4 customized jigs



Each jig is designed to house perfectly the component, to automatically lock it and move it inside the machine after the manual loading by the operator.

### Solution advantages

- **100% control of the assembly process**

All operations are in fact under control and, notably tightenings, carried out according to the set parameters, are available with reports that can be statistically processed and printed.

- **The machine has been designed in order to ease possible change of component**

If the component to be assembled is changed, we will just need to redesign the jig and re-program the machine for new sequences of assembly.

- **A solution guaranteed by Fiam**

The solution is entirely designed and manufactured by Fiam according to EC standards in regards to safety and has been carefully tested to ensure to the customer it will work according to the expectations.

- **High quality of the finished product**

Being manufactured using high-tech DC electric motors, the assembled product is a very high quality one and requires no post process quality check.



- **Scrap elimination**

Assembly operations become faster and more reliable, reducing the quantity of scraps. A crucial advantage to ensure final quality.

- **High production rate**

The solution optimized not only the tightening time meeting customer's needs but also the overall assembly time since: while the machine fasten screws automatically, the operator performs all the manual phases needed in order to prepare the next component to be processed.



YouTube

See our solutions on YouTube  
click on the link within our website  
[www.fiamairtools.com](http://www.fiamairtools.com)

**Fiam**  
PEOPLE AND SOLUTIONS

**Fiam Utensili Pneumatici Spa**  
Viale Crispi 123  
36100 Vicenza - Italy  
Tel. +39.0444.385000  
Fax +39.0444.385002

[customerservice@fiamairtools.com](mailto:customerservice@fiamairtools.com)  
[www.fiamairtools.com](http://www.fiamairtools.com)

**Fiam France s.a.s.u.**  
ZI Champ Dolin, 3 allée du Lazio  
Bâtiment 3 - 3ème Etage  
69800 Saint Priest - France  
Tel. +33.4.78700150  
Fax +33.4.78705403

[serviceclient@fiamfrance.fr](mailto:serviceclient@fiamfrance.fr)  
[www.fiamfrance.fr](http://www.fiamfrance.fr)



Quality Management  
System Certificate



Environmental Management  
System Certificate