



Um novo conceito em Passadores.

A new concept in Drawframes.



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## DF-2A DRAWFRAME MACHINE

Nova linha de Passadores.  
New drawframes line.

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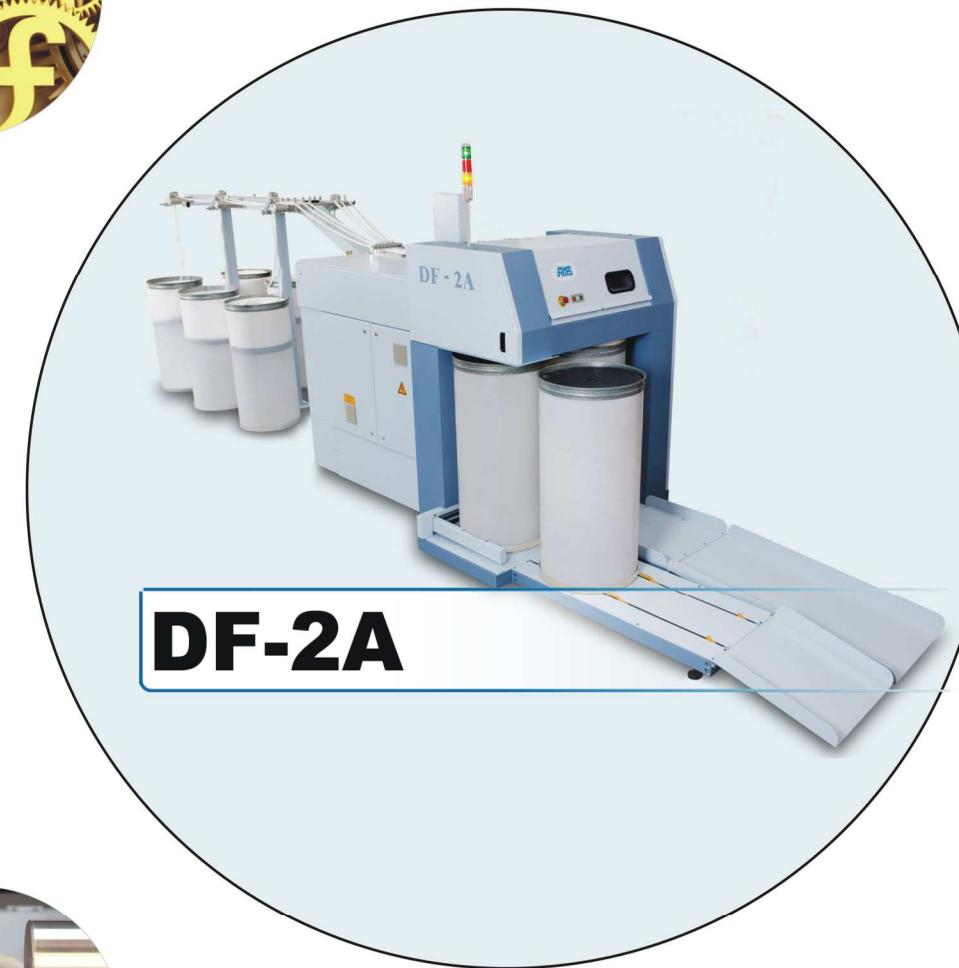
# High-Performance DF-2A Drawframe



Um novo conceito em Passadores.  
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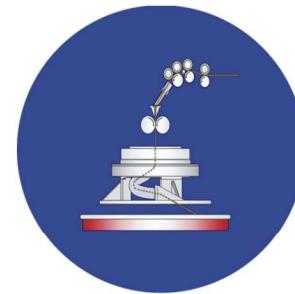
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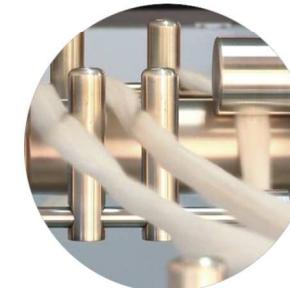
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## High-Performance Drawframe FATES® DF-2A

We can highlight the following features among the ones that distinguish the new FATES® DF-2A High-Performance Drawframe: highly regular sliver due to a new 100% electronic digital auto-levelling concept, constant real time quality control of sliver delivery, low maintenance cost, the simplicity of operation combined together for high productivity and efficient operation.

As we know, the quality of the sliver is determinant for the quality of the final yarn. The exclusive DF-2A digital auto-levelling system (equipped with d-T&G®) attains the highest possible sliver uniformity by constant measurements at short sliver distances up to speed of 1000 m/min (depending on the processed material).

The FATES® DF-2A Drawframe was built with concept of a Computer Integrated Manufacturing. The DF-2A Drawframe system offers in its interface all the necessary operating and programming data, including graphs for quality control (Quality monitor) to ensure high performance of your spinning mill.

So we can guarantee that your FATES® DF-2A High-Performance Drawframe will be the quality center with high performance in your spinning mill.



**The sliver formation is determinant for the yarn quality.**



## The Quality Center in the Spinning Mill

High quality sliver is a prerequisite to achieve a world class yarn. Although all the processes at a spinning mill are important for the yarn's final quality the sliver formation is determinant for its quality of the sliver in the roving frame and for the yarn in the ring spinning machine or at the open end.

Our starting point is that the sliver irregularity has to be prevented at the Drawframe, otherwise it can't be eliminated by the subsequent processes. Therefore a good delivery sliver of the Drawframe is fundamental for the final yarn quality.

Experience and knowledge of practical requirements in daily operation flexibility, ease of operation, efficiency - are the basis for the development of FATES® Drawframes suitable to process cotton, synthetic fibers and blends.

## Main Features of the DF-2A Drawframe

### ● Technology at service of Spinning Mill:

The exclusive full digital auto-leveler and the electronic draft systems contribute to technological superiority of this Drawframe, available at a very affordable acquisition cost.

### ● Simplicity of Operation:

The simplicity of operation is its main characteristic of the DF-2A Drawframe and enables users to adjust its operational settings without help of experts. All the operational functions can be easily modified by commands on the touch screen display with no additional calculation or change of pulleys or gears.

### ● Constant Count A%:

The DF-2A Drawframe auto-leveler guarantees full regularity of the sliver during the operation cycle: from the start to machine stop. The levelling is precise even when the DF-2A Drawframe is fed with different quality slivers. An additional guarantee is offered by the online Quality Monitor System (QM), which controls for the quality of delivery sliver and avoids deviation of the sliver count.

### ● Compact:

Compared to its competitors, the Drawframe DF-2A is more compact and requires less floor space in your manufacturing plant, providing space savings with high productivity.

### ● Low energy consumption:

Thanks to the new drive belts system and a reduced number of motors, we guarantee low energy consumption, which contributes for competitiveness and profitability for your spinning mill.

### ● Robust Structure:

The new structure of the DF-2A Drawframe was projected to ensure maximum strength and easy maintenance. DF-2A Drawframe has a modern design and was built with and highest quality material to ensure long durability, and to maximize the return on your investment.

### ● Low maintenance:

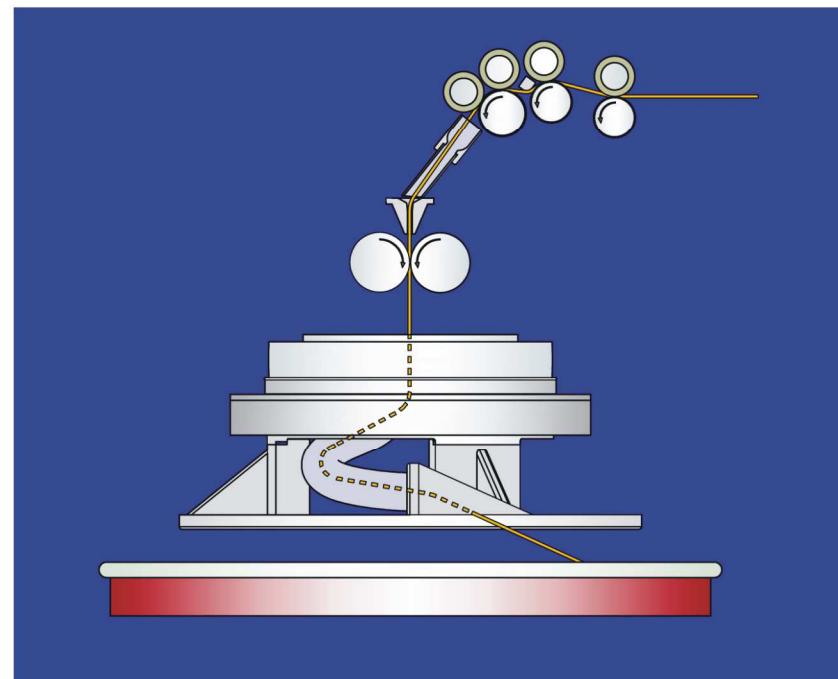
We made special effort to project a low maintenance equipment. The frequency of maintenance was reduced by shielding several drives, the use of drive belts system, replacement of mechanical driven systems by inverter controlled systems and the use of a very well calculated suction in the critical points of the machine. The lubrication intervals and the number of lubrication points were determined through constructive principles of maintenance optimization.

### ● Silent operation:

The operation of Drawframes at high delivery speed normally requires noise control. However the High-Performance Drawframe DF-2A FATES® operates very silently thanks to rectified gears, flat and toothed pulleys and some other features which contribute to a very silent operation of the Drawframe.

## Drawframe Draft System

- **Optimized Draft System:** The Drawframe DF-2A - with an already approved 4-over-3 roller drafting system with the ideal sliver withdrawing geometry and sliver diversion in direction of the calendar roller has a decisive influence on the production. Advantages of this system are low speed of rotation of the top rollers with are subject to less strain and which thus do not need to be reground so frequently. The bottom rollers were projected with a larger diameter than the one at our competitor's equipment and have double special bearings at their extremities, all this factors make that the top rollers do not become as hot during the Drawframe operation. However DF-2A Drawframe drafting system main advantage lies in the high degree of flexibility and ease of operation. The 4-over-3-roller drafting system is able to process all staple lengths from short cotton fibers to 40 mm blends without the need for adjustment. If the drafting system needs to be reset for longer staples, the pairs of rollers can be shifted without a great deal of effort. The drafting range varies between 25 and 80 mm. The drafting system is also easy and uncomplicated to operate and guarantees high delivery speeds with great regularity of the sliver.

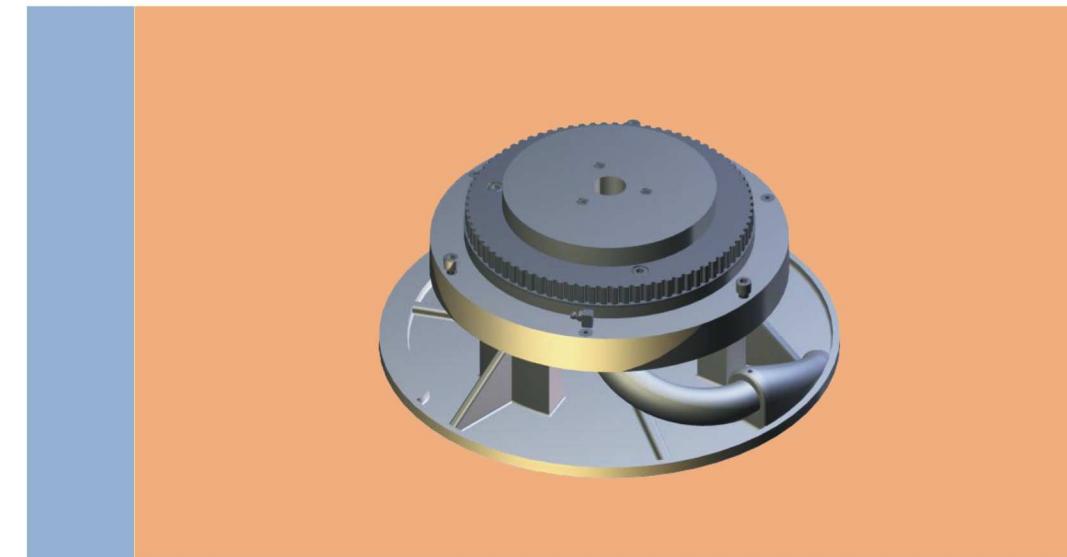


- **Drafting and Break Draft System Drive:**

Anti-friction bearings are used for all bearing points of the drafting system. The system was designed to use interchangeable toothed pulleys with a large number of teeth. This means that it is possible to make fine adjustments in break draft. A change in break draft does not affect the delivered sliver count so that the optimum setting of the break draft is independent of the delivered sliver count.

- **Sliver Condensation:**

After the draft system the sliver is formed through a veil guide (new condenser design). This condensation occurs through the funnel AP and the compressor calenders. The new tongue and groove Z type calender, essential for a good processing performance of synthetic or blended fibers, additionally improves the cleaning effects on the Drawframe itself and it is very useful during the subsequent production stages specially when processing combed cotton. The compression system - that can be adjusted within a range of 40/60/80 or 100 Kg - results in improved sliver compaction, providing more adherence to the fibers, decreasing the volume in up to 25% of higher can filling weight.



**High quality sliver is a prerequisite to achieve a world class yarn**

- **Electronic Drafting:**

Additional to the optimized drafting system, the DF-2A Drawframe has a unique electronic drafting system, which eliminates the need of sophisticated calculations to change gears and pulleys to set the main draft as required by other Drawframes. The operator itself changes the sliver weight on the machine screen informing the delivery desired weight value of the sliver along with the nominal value found, with this information the machine automatically adjusts the main drafting, delivering the sliver with the weight programmed setting..

- **Sliver Coiling:**

A Universal Rotating Coiler made in aluminium alloy and with curved channel in stainless steel, guarantee the correct and neat can coiling without mistreating the material. This rotating coiler is driven by flat belt and supported by bearing with larger diameter than that found in other Drawframes, which leads to greater stability, which together with the exclusive coiler geometry allows to achieve a high delivery speed and a significant improvement in the quality of the delivery sliver.

- **Sliver Separation:**

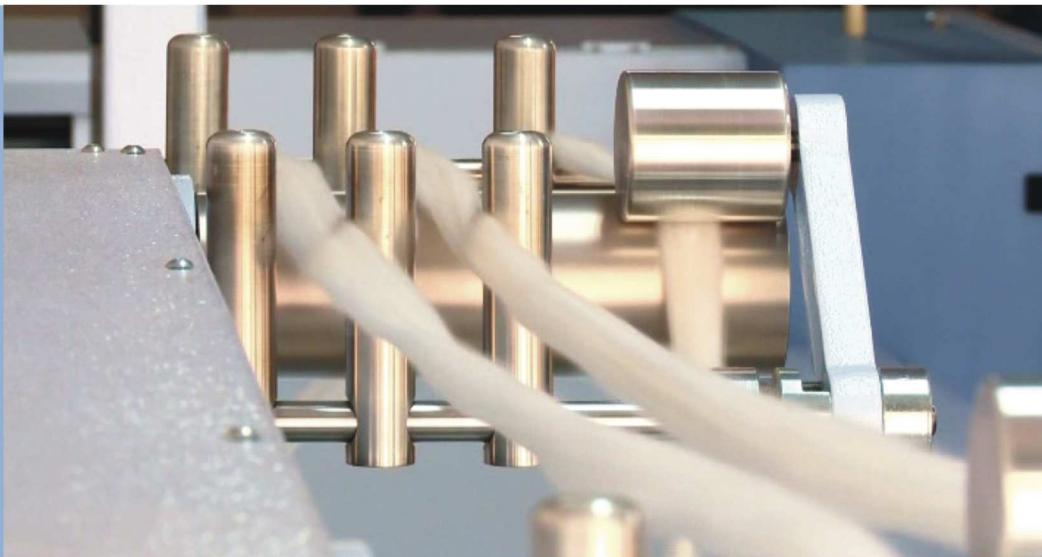
The sliver separation is held electronically, it is done by changing the sliver count which generates a sliver fine point into the draft field. This fine point is conducted to the output of the rotating coiler, causing the separation of sliver at the time of the can change. This system guarantees an efficient sliver separation for any type of material with maintenance free.

## Feeding Creel

Positively driven feed rollers are important to reduce the frequency of slivers breakage and to avoid false draft. They also contribute to the controlled motion among the feeding rollers and measure calenders (d-T&G®), contributing this way to good quality of the delivery sliver. The precise conduction of the sliver in this sector has importance mainly at high delivery speeds. The creel structure and the articulated transmission, allow to adjust the creel height for cans with up to 40" diameters and 48" height. The standard version predicts a doubling 6 fold. However, according to the client's order it can be made with a doubling 8 fold.

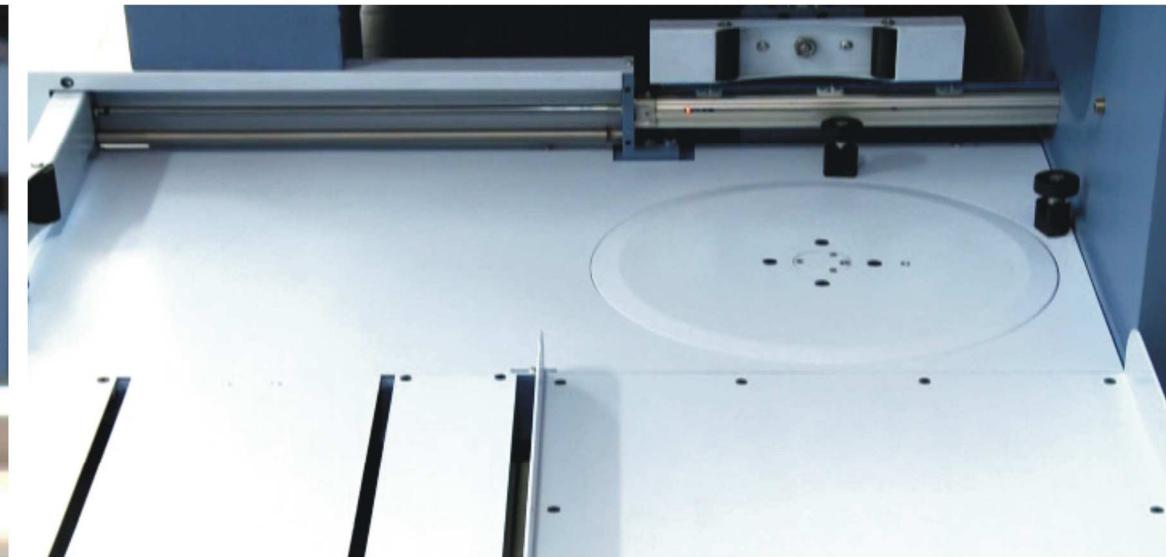


**Quality, low maintenance cost, the simplicity of operation combined together for high productivity and efficient operation.**



## Automatic Can Changer

The new FATES® DF-2A Drawframe comes with a new automatic can change based on pneumatic principle, whose installation is simple (over the floor) and requires little floor space. The automatic changer replaces the full cans by the empty ones in a fast and effective way. As all the cans movements are linear, this system does not damage the cans in case of an accident as in the traditional carousel system. The can centralization is done by casters. It can be used for cans with diameters ranging from 12" to 24" and heights from 36" to 48".



## Suction Box

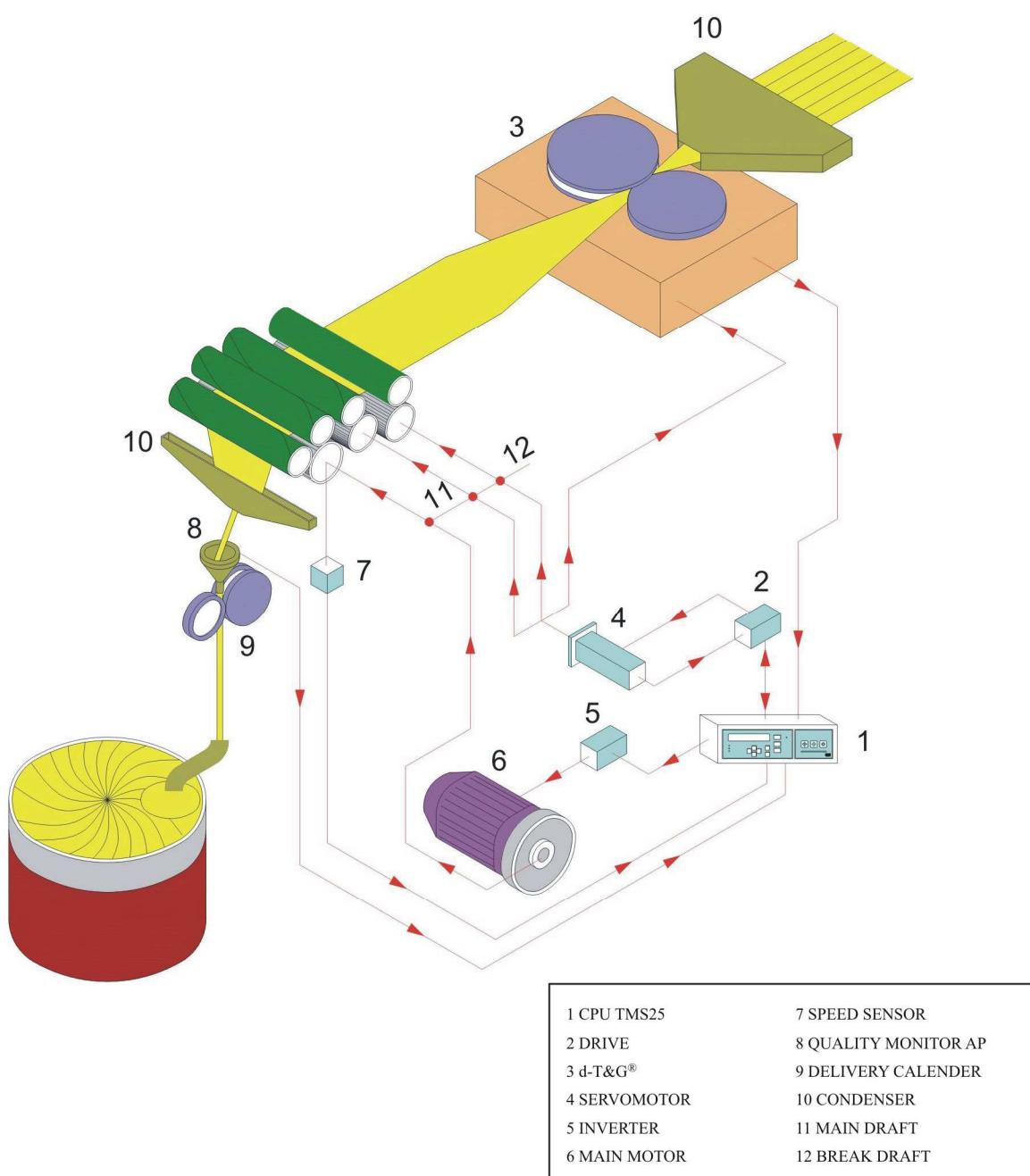
The new FATES® DF-2A Drawframe suction system was designed to guarantee that all the components in the material passage area always remain clean, an important condition for high efficiency. A controlled air flow inside the enclosed drafting area and under the d-T&G® effectively eliminates micro dust and loose fibers. Additionally, cleaners and wipers made of special rubber do not allow loose fibers to deposit on the top and bottom rollers. All waste generated is exhausted into the suction box at the backside of the Drawframe which can be extracted at long intervals of time.

## Control Panel - Friendly Man-Machine Interface

For safe and fast operation of the DF-2A FATES® High-Performance Drawframe, the control panel was designed considering ergonomic principles and with a friendly man-machine interface. One of its important aspects is the machine's dialog service, which allows communication with the system in different languages and provides several information about production, quality, anomalies, generates graphs and guides the operator about how to operate the Drawframe. The change of the main drafting (electronic draft) is done by servo motor in a simple way, informing the system only the desired and real value. Just like the electronic draft, the delivery speed can also be electronically altered without the need of substituting pulleys or gears.

## FATES Digital Autoleveller

The High-Performance FATES® DF-2A Drawframe is the only one equipped with autoleveler and fully digital electronic draft system. It operates based on the principle of open loop control, measuring variations in the sliver mass fed up to +/- 30%. The drive system operates via a last generation servo motor, which ensures absolute precision. The mass of the fed sliver is controlled through the d-T & G® prior to the drafting system and is standardized at the exact moment that it passes by the main draft. This system achieves extremely fast response times even at high speeds and results in a very regular sliver in the short, medium and long term.



### d-T&G® :

The digital d-T&G® system is based on the well-proven principle of T&G (Tongue and Groove) and performs constant measurements INDEPENDENT OF THE FEEDING SPEED - at very short distances. The tongue-and-groove principle ensures low friction between fibers and metal, decreases the deposits in the pneumafil and allows the application of higher compression force on the incoming sliver, being able to measure with greater accuracy the deviations in the sliver feeding mass. This constant compression force is exerted by a high precision spring on the measurement disc in the d-T&G system . The signal is transmitted by a total digital "dual laser sensor" ® with no need of analog-to-digital conversions as in the other T&G systems. The advantage of a totally digital system is the higher precision in readings of the slivers feeding mass which leads to a high precision and constant auto leveling with the electronic drafting help which guarantees a great regularity in the produced sliver.

The T&G® sensor calibration is sporadic, simple and can be performed by any person in only 45 seconds.



**Exclusive fully digital autoleveller measure with greater accuracy the deviations in the sliver feeding mass.**  
**Exclusive electronic draft system makes easy to adjust the sliver count.**

### Autolevelling:

After detection of the feed sliver mass variations by the d-T&G, the measured signals are transmitted to the TMS-25 CPU, which process the signals through a sophisticated algorithm and sends commands to the highly dynamic servomotor, correcting the mass variation inside of the main draft field. The DF-2A autoleveller has an automatic function that adjusts the levelling set point. To activate this function, it's enough to press the button "Centralization of d-T&G" on the machine display, which takes less than 1 minute and can be done by the operator. The "**centralization of the d-T & G**" is used to change the material and it is important to define when a change detected by the d-T &G must be corrected in the main drafting area.

### Monitoring Quality:

The DF-2A FATES® Drawframe AP quality measurement sensor is located in the measuring funnel at delivery side and measures continuously all the mass deviations and irregularities, sending visible alerts to the controlling panel, generating quality graphics and turning off the Drawframe in case it surpasses the programmed values. These warning values and turning off are individually defined and programmed according to user's preference. The AP sensor has no electronic or mechanic components, reason why it does not require replacement or maintenance due to 'wear or accident'.

The quality monitoring provides the mass variation data from A%, CV%, CV% 1m, CV% 3m and TP (thick places). Additionally, the TMS25-Link software (optional) also gives you the option of registering online your production and productivity data as well as quality graphics in an external PC.

## DF-2A Drawframe Specification

## DF-2A Floor Plan Dimensions

### Material Processing Specification

Raw Material (Type and Length)	mm	Cotton / Synthetic / Viscose up to 80 mm
Sliver Feed Weight	Ktex (g/m)	Up to 50
Sliver Delivery Weight	Ktex (g/m)	3,3 - 6,3

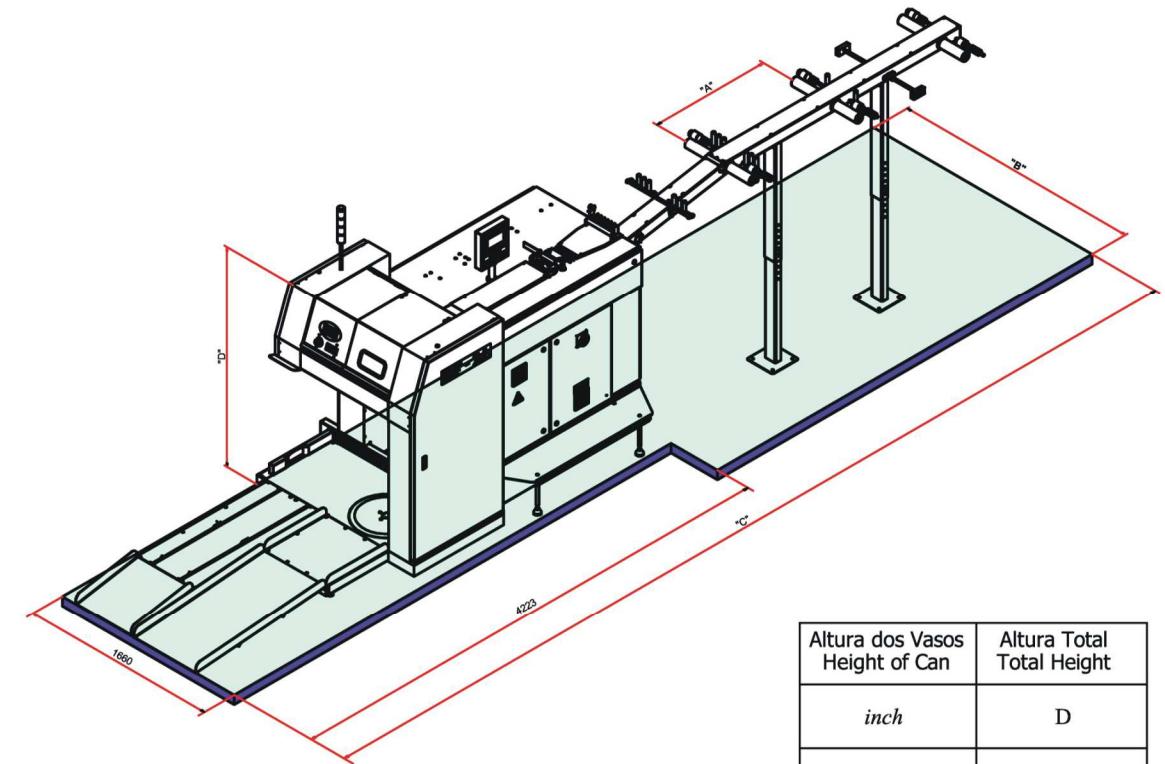
### Technical Specification

Delivery Point	m/min	1
Delivery Speed		Max. 1000 (mec.)
Delivery Speed Adjustment		Electronic
Doubling	X	6 or 8
Execution of Creel		Positively Driven and Vertically Adjustable
Draft	X	2 until 10 (Electronic)
Drafting System		4 over 3
Draft Compression System		Adjustable by Spring
Coiler Diameter	Inch	14" until 24"
Sliver Cutter		Electronic
Delivery Can Height	Inch	Up to 48"
Can Charger		Pneumatic
Set-up of Feeding Cans		* Up to 4
IHM Type		Friendly Touch Screen Color Display
Autoleveller Range	%	+/- 30
Scanning Roller		d-T&G (Digital Tongue and Groove)
Autoleveller Sensor		Dual Laser Digital Sensor
Quality Monitor Sensor		Type AP (Air Pressure)

\* Dependant on Specification

### Machine Specification

Compressed Air Consumption	L/h	500
Compressed Air Pressure	Bar	6 until 7
Main Motor	KW	5,5
Suction Motor	KW	2,2
Autoleveller Servo-motor	KW	4,2
Drawframe Weight	Kg	2500



Altura dos Vasos Height of Can	Altura Total Total Height
inch	D
36"	1570
40"	1670
42"	1720
45"	1800
48"	1870

### Dimensões da Prateleira / Creel Dimensions

d ø Interno d ø Internal		D ø Externo D ø External		Bitola Gage	Largura Total Total Width	6 Acoplamentos 6 Ends	8 Acoplamentos 8 Ends
mm	inch	mm	inch	A	B	C- máx.	C- máx.
500	20"	530	16,9	630	1660	6795	7425
600	24"	630	24,8	630	1700	6845	7475
900	36"	930	36,6	1030	2000	7795	8825
1000	40"	1030	40,5	1030	2110	7845	8875