


“The earth provides enough to satisfy every man’s needs but not every man’s greed”

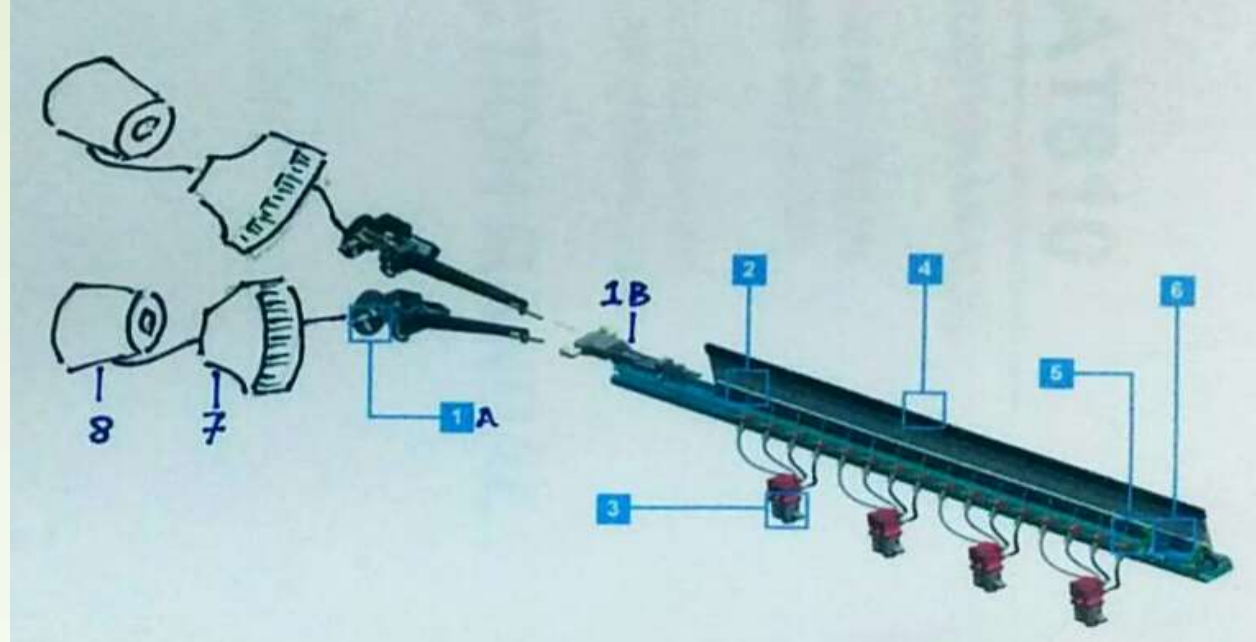
Mahatma Gandhi





Importance of Energy conservation

- ▶ We use energy faster than it can be produced.
 - ▶ Energy resources are limited. It is said that our energy resources may last only for another 40 years or so.
 - ▶
 - ▶ Most of the energy sources we use cannot be reused and renewed.
 - ▶ We save our money when we save energy.
 - ▶
 - ▶ Energy saved is energy generated.
- 



1. Weft yarn released from chease (8) is wound on Measuring Drum (7) and locked with electromagnetic pin.
2. When electromagnetic pin *releases* the wound weft yarn, it is accelerated by the Tandom Nozzle (1A) and Main Nozzle (1B) at a specific timing, and is inserted into the air guide of the reed.
3. Groups of sub-nozzles(2) are located across the whole width. Each group jets compressed air in a specific order to feed the weft yarn tip to the right end of the fabric.
4. The compressed air is supplied from the compressor, and through electromagnetic valves (3) it flows through Main and Sub Nozzles.

Air pressure is adjusted by the regulators for the main nozzle and the sub-nozzles, and air blowing timing is controlled by the electromagnetic valves

ARVD II Plus

Airjet



LET'S GROW
TOGETHER



PICANOL



ARVD- Adaptive Relay Valve Drive

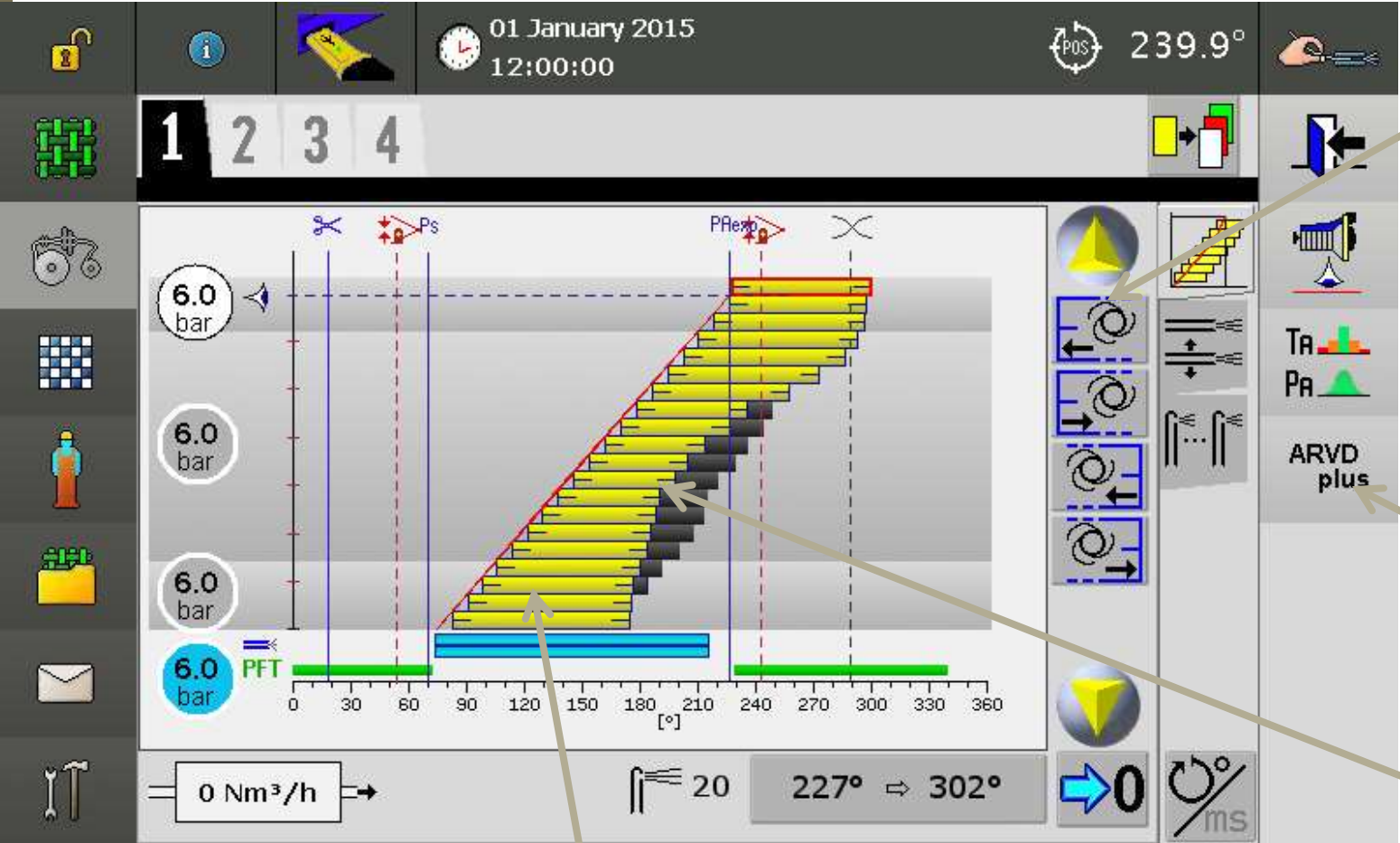
- This feature can save air upto 20% air on loom
- It shortens the relay valve drive times automatically according to the weft.
- Unnecessary blowing of the relay valves is avoided.
- Does not have a manual interference. Software is doing this automatically
- Costly compressed air is saved.



How it works

- Comparison of winding timings from rewinder with info from filling detectors (arrival times) to evaluate the insertion speed
- If variations in insertion speed are detected => adjust blowing times of the relay nozzle valves
- Reduce the blowing time as much as possible while keeping a stable insertion (speed)
- Fully Automated, will adjust to the yarn specifications

ARVD II plus screen



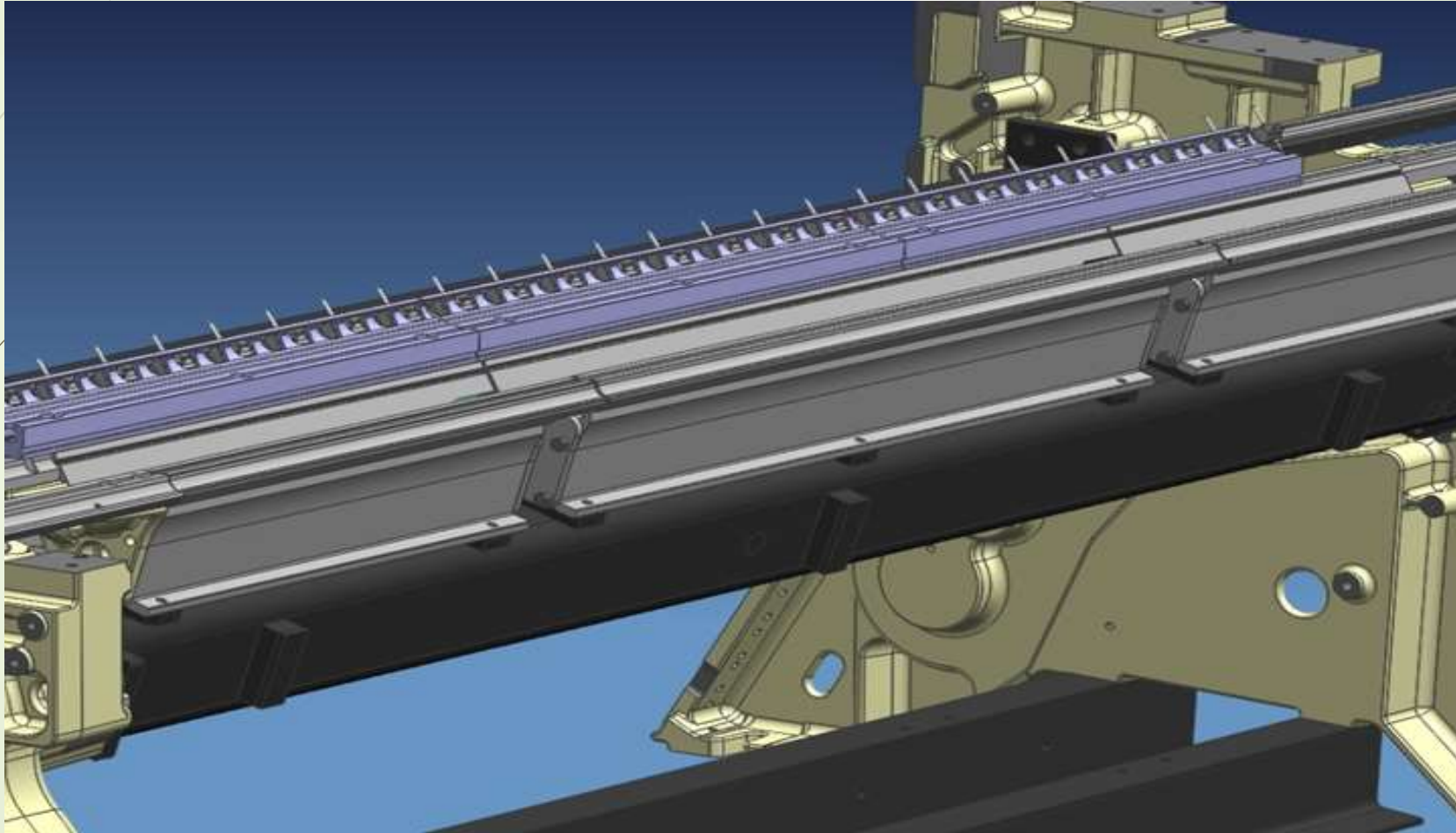
Auto regulating (front/back)


Settings screen

Blowing time of relay nozzle valves

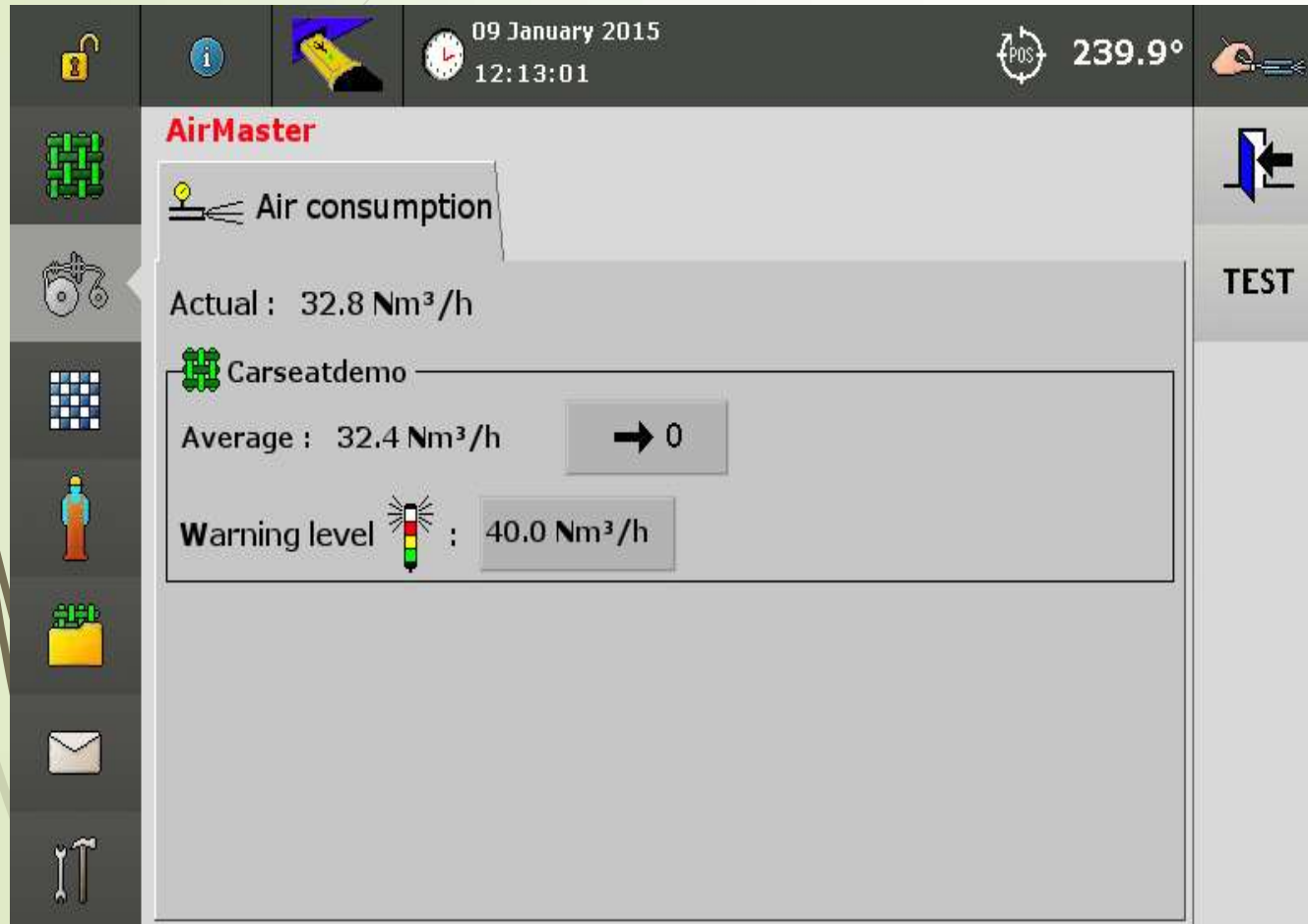
Indication of savings on closing time optimization

TRIPLE AIR TANK



- 
- You can keep air pressure on the middle tank lower than other 2 tanks
 - Relay Nozzles in middle are NOT required to blow at high pressure
 - Like this you save on air

AIR MASTER



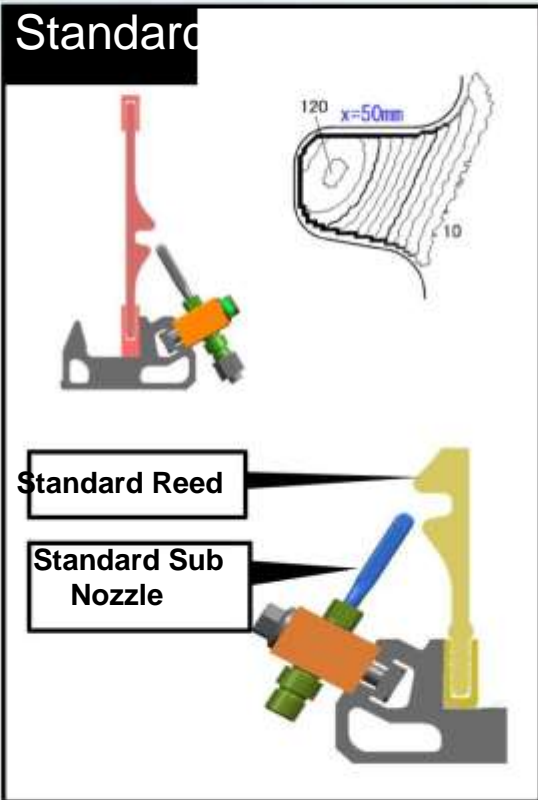
- It shows actual air consumption
- Target air consumption
- Leakage detection

Energy Saving

TOYOTA AIR JET LOOM

JAT810

Standard



120 x=50mm

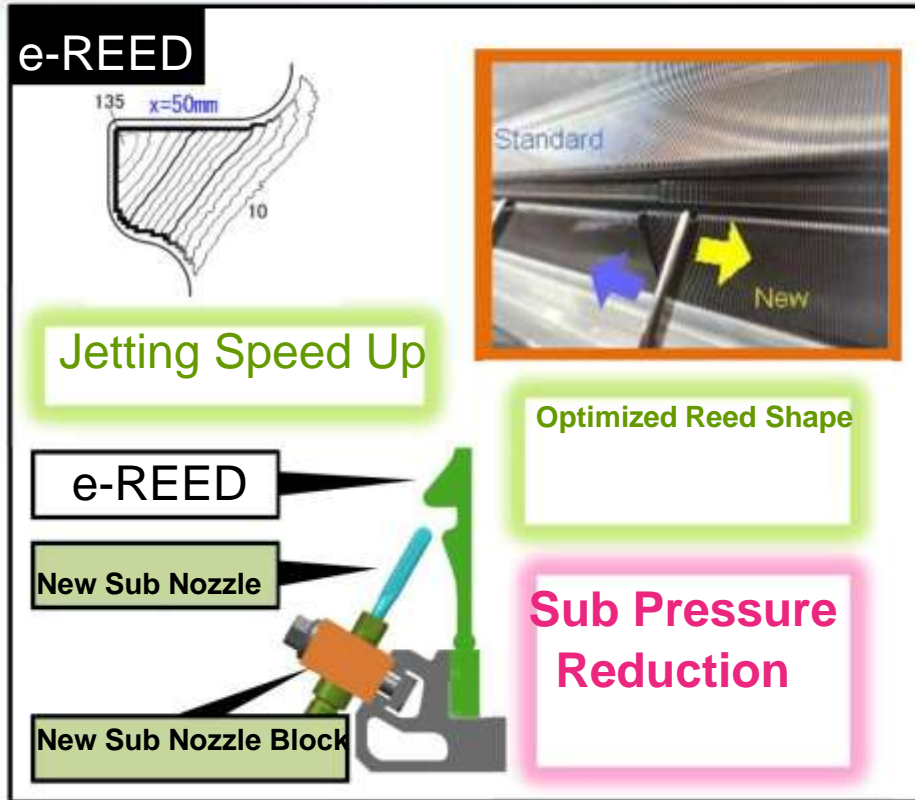
10

Standard Reed

Standard Sub Nozzle

Detailed description: This diagram shows the standard reed and sub-nozzle assembly. The reed is a yellow component with a height of 120mm and a width of 50mm. The sub-nozzle is a blue component. A callout box points to the reed with the label 'Standard Reed', and another callout box points to the sub-nozzle with the label 'Standard Sub Nozzle'. The reed is shown in a cross-section view with a height of 120mm and a width of 50mm. The sub-nozzle is shown in a side view with a height of 10mm.

e-REED



135 x=50mm

10

Jetting Speed Up


Optimized Reed Shape

Sub Pressure Reduction

e-REED

New Sub Nozzle

New Sub Nozzle Block



Standard

New

Detailed description: This diagram shows the e-REED reed and sub-nozzle assembly. The reed is a green component with a height of 135mm and a width of 50mm. The sub-nozzle is a blue component. A callout box points to the reed with the label 'e-REED', and another callout box points to the sub-nozzle with the label 'New Sub Nozzle'. A third callout box points to the sub-nozzle block with the label 'New Sub Nozzle Block'. The reed is shown in a cross-section view with a height of 135mm and a width of 50mm. The sub-nozzle is shown in a side view with a height of 10mm. A green box highlights the text 'Jetting Speed Up'. A green box highlights the text 'Optimized Reed Shape'. A pink box highlights the text 'Sub Pressure Reduction'. An inset image shows a comparison of the standard reed (blue arrow) and the new reed (yellow arrow) with the labels 'Standard' and 'New'.

HOME

MENU

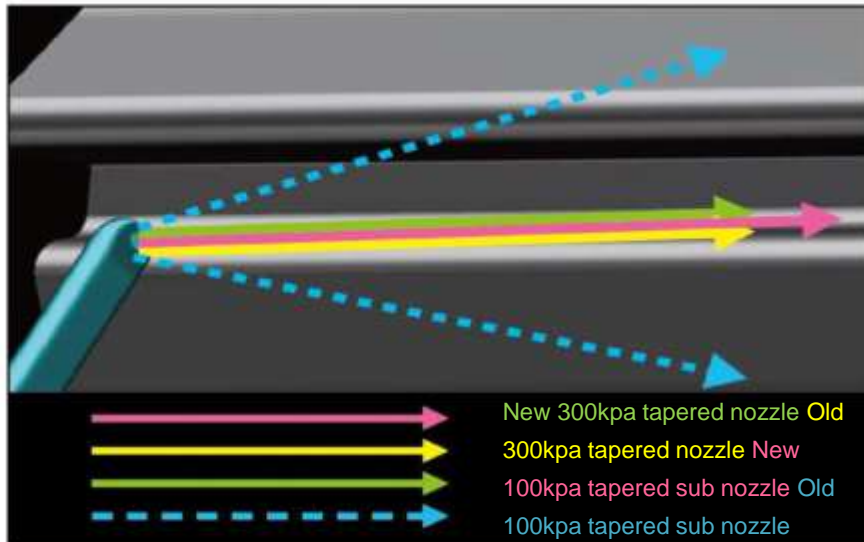
TOP

Energy Saving

TOYOTA AIR JET LOOM

JAT810

New Tapered Sub Nozzle



Comparison of New Tapered Sub Nozzle (in Low Pressure)

New Type Nozzle :
Maintain ideal jetting angle even in low pressure

Secure stable insertion even in low pressure

HOME

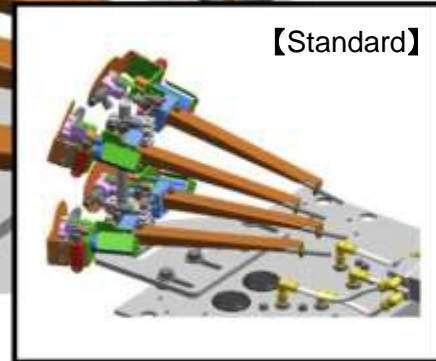
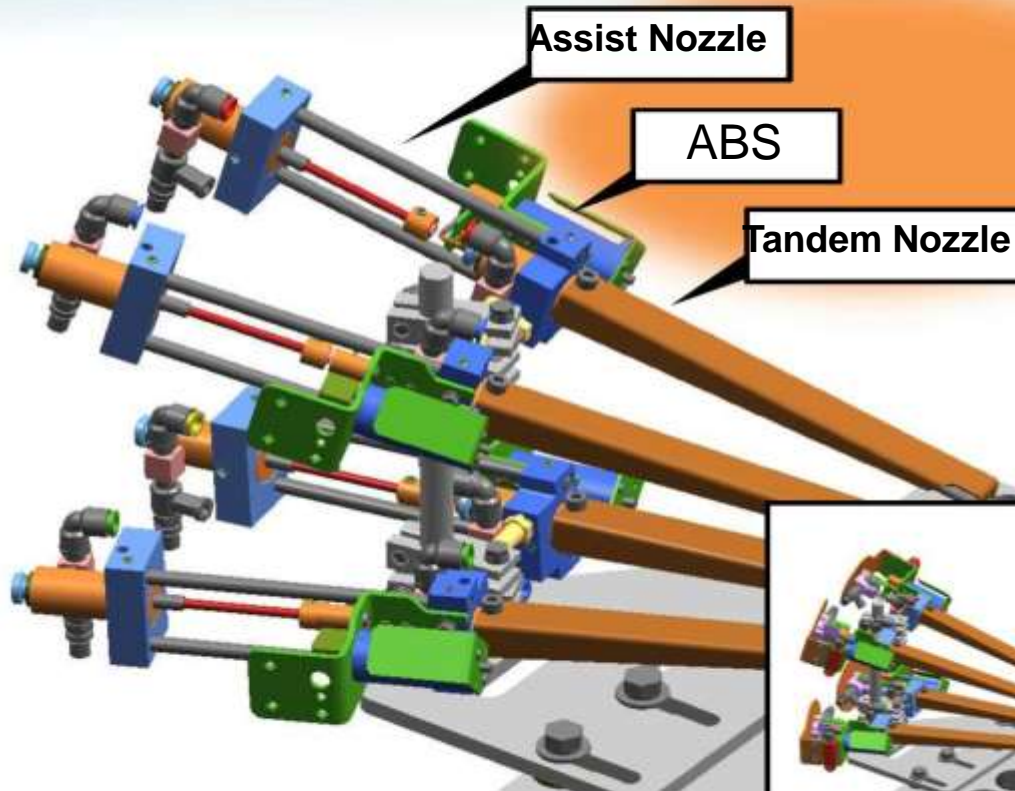
MENU

TOP

Energy Saving

TOYOTA AIR JET LOOM JAT810

Multi Tandem Nozzle



1 Main Nozzle Part
(Main Nozzle + Tandem Nozzle)
25% Impulse Increase

2 Main Pressure
30% Reduction

3 Yarn insertion by one push only
(Same as before)

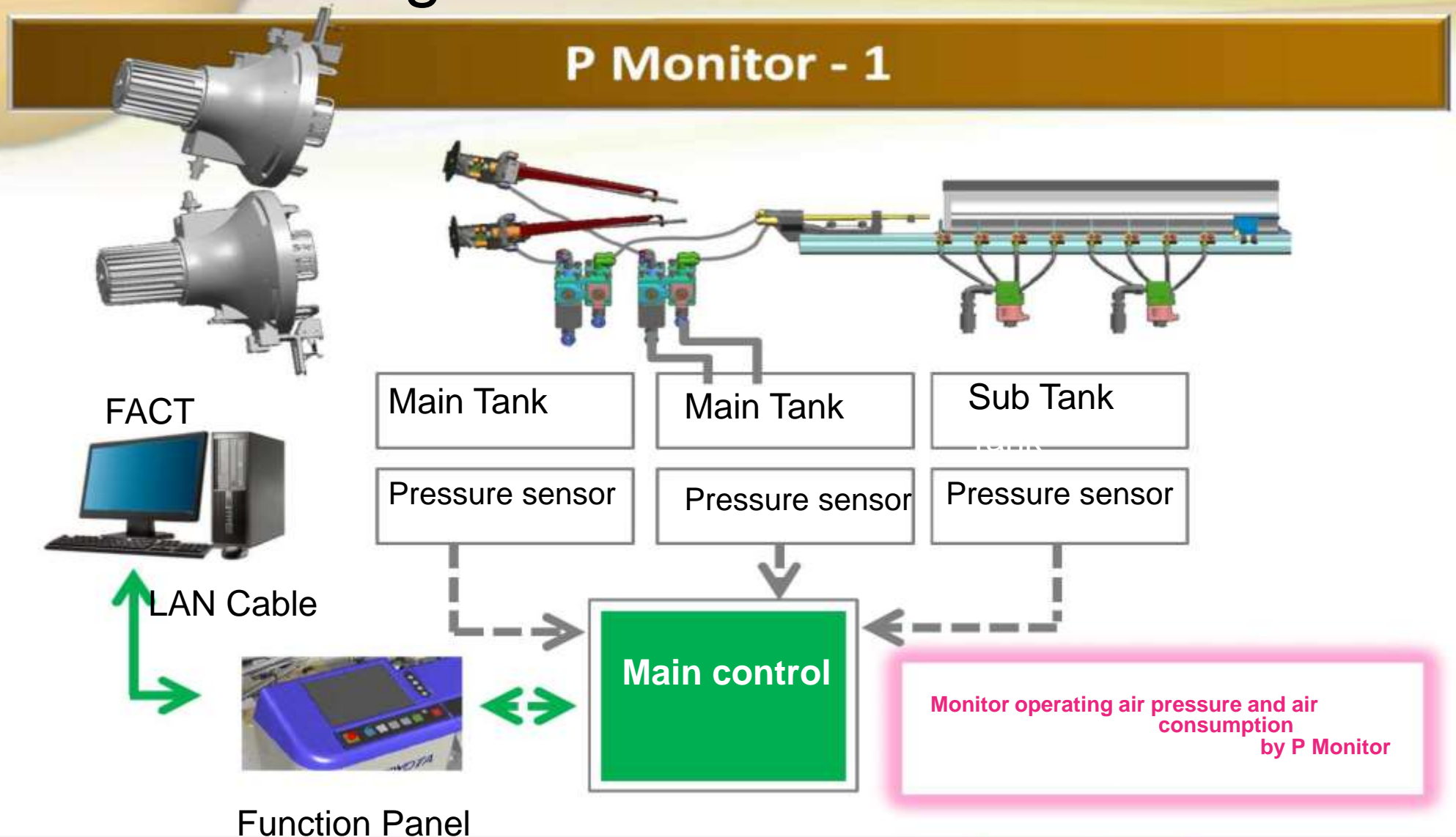
HOME

MENU



Total Management

P Monitor - 1



FACT

Main Tank

Main Tank

Sub Tank

Pressure sensor

Pressure sensor

Pressure sensor

LAN Cable

Main control

Monitor operating air pressure and air consumption by P Monitor

Function Panel

TOP

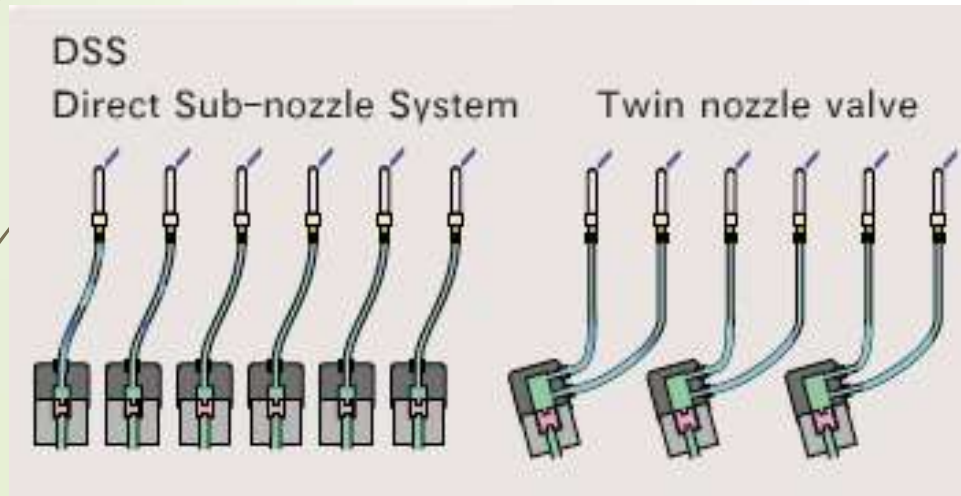
HOME

MENU

Air Jet Loom “ZAX9200 MASTER”

DSS Direct Sub-nozzle System

One valve is provided for one sub-nozzle. A more effective sub-nozzle jetting timing is available compared to the previous twin nozzle valve, making a significant contribution to air consumption reduction max 10%



Switchable sub-nozzle block

Relative position of the sub-nozzles and the reed can be adjusted according to fabrics and operating conditions. With the optimum adjustments, air savings are effectively attained.

COST IMPLICATION

Let us take a hypothetical case of a 100 looms shed with an Efficiency of 83%. A reduction of only 2 CFM / Loom will result into following savings.

>1 KWH required to produce approx. 5.8 CFM

- 0.17 KWH = 1 CFM
- 0.34 KWH = 2 CFM
- Saving of 2 CFM / LOOM / DAY means saving of $0.34 * 24 * 0.83 = 6.77$ KWH
- Saving of 2 CFM / LOOM / YEAR means saving of $6.77 * 365 = 2472$ KWH
- No of Looms = 100
- Total saving / year for 100 looms = $2472 * 100 = 247200$ KWH
- If we take 1 KWH = 7.9 R/s; Total saving in terms of money is $247200 * 7.9 = 1952880$.



THANK YOU