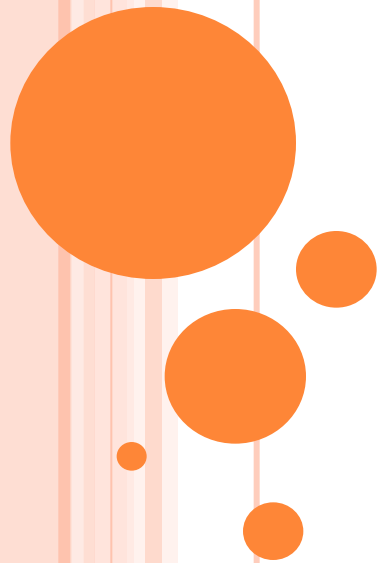


**COMPLIMENTS AND CONGRATULATIONS
TO **WORLD TRADE CENTRE**
FOR ORGANIZING
WORLD TRADE DAY (WTD) ON
**‘ENHANCING EXPORT OPPORTUNITIES FOR
MSME’s’**
IN MAHARASHTRA IN JUNE, 2018.**



ITAMMA

OLDEST AND LARGEST ASSOCIATION IN TEXTILE ENGINEERING INDUSTRY IN INDIA

HERITAGE BUILDING WITH STATE -OF-THE -ART CONFERENCE FACILITIES AND KNOWLEDGE CENTRE

ACCREDITED BY DIAMOND GRADE AT NATIONAL LEVEL BY NABET

> 500 MEMBERS OF INDIAN TEXTILE ENGINEERING INDUSTRY

LIAISON OFFICES IN INDIAN TEXTILE CLUSTERS AT AHMEDABAD, COIMBATORE, MUMBAI AND NORTH INDIA.

AFFILIATED TO IMPORTANT SATELLITE ASSOCIATIONS

CO-PROMOTER OF INDIA ITME EXHIBITIONS

EFFECTIVE COMMUNICATION

“ ITAMMA VOICE ”- MAGAZINE

BUYERS' GUIDE: “TEXTILE STORES AND MACHINERY DIRECTORY”

WEBSITE AND SOCIAL MEDIA

TECHNOLOGY DEVELOPMENT INITIATIVES

TRAINING PROGRAMMES

DESIGN AWARENESS AND LEAN MANUFACTURING

CENTRE OF EXCELLENCE AND TEXTILE CLINICS.

R & D ACTIVITIES

SIGNED MOU'S WITH MORE THAN 25 RESEARCH/EDUCATIONAL INSTITUTIONS WORLD WIDE

ITAMMA EXPERT PANEL TARGETING 400 TECHNO- COMMERCIAL EXPERTS

IMPORTANCE OF CUTTING EDGE TECHNOLOGY IN TEXTILE MANUFACTURING



**N D. MHATRE,
DIRECTOR GENERAL (TECH)
ITAMMA**

WHAT DOES CUTTING-EDGE TECHNOLOGY MEAN?

CUTTING-EDGE TECHNOLOGY REFERS TO TECHNOLOGICAL DEVICES, TECHNIQUES OR ACHIEVEMENTS THAT EMPLOY THE MOST CURRENT AND HIGH-LEVEL IT DEVELOPMENTS; IN OTHER WORDS, TECHNOLOGY AT THE FRONTIERS OF KNOWLEDGE. LEADING AND INNOVATIVE IT INDUSTRY ORGANIZATIONS ARE OFTEN REFERRED TO AS "CUTTING EDGE."

CUTTING EDGE IS ALSO KNOWN AS LEADING-EDGE TECHNOLOGY OR STATE-OF-THE-ART TECHNOLOGY

EDGES IN A SQUARE SUCH AS ROAD TURNINGS OR A PIECE OF CLOTH OR A PIECE OF PAPER ARE AT RIGHT ANGLES OR THEY ARE SHARP, THUS FORCING YOU TO TAKE A 90 DEGREE TURN. SUPPOSING THE ROADS HAVE A SMOOTH AND A CURVED TURNING, TAKING A TURN WILL BE SMOOTH AND CONVENIENT!! So ALSO CUTTING INVOLVING ANYTHING. So CUTTING AN EDGE REMOVES SHARPNESS AND MAKES THINGS SMOOTHER, EASIER AND MAY BE HELPS IN BEING FAST, SUCH AS IN A RACE TRACK!

WHAT WAS THE NEED OF USING CUTTING EDGE TECHNOLOGIES

ENHANCE PRODUCTIVITY
IMPROVE PRODUCT QUALITY

ENERGY CONSERVATION
REDUCE WASTE
MAINTENANCE FREE
USER – FRIENDLY
ECO-FRIENDLY

ENVIRONMENT FRIENDLY
GOING-GREEN
RESPONSIBLE MANUFACTURING

ROAD MAP OF TECHNOLOGICAL DEVELOPMENTS

MECHANICAL LINKAGES/FUNCTIONS

PNEUMATICS

HYDRAULICS

ELECTROMAGNETIC

ELECTRONICS

COMPUTERIZATION

DIGITAL MANUFACTURING

SMART MANUFACTURING

INDUSTRY 4.0 MANUFACTURING

RESPONSIBLE MANUFACTURING/GREEN MANUFACTURING

SUSTAINABLE MANUFACTURING

TEXTILE INDUSTRY - STATUS

- **Global Textile Industry –expected to reach USD 2.1 trillion by 2025**
- **India's present Textile Market is 1% of total World's market which will be at 5% by 2025 growing @12% (higher than any other country)**
- **Presently Indian production of textile machines is 1.2 billion USD against 2.7 billion USD market size**
- **India Exports 0.5 billion USD and Imports 2.1 billion USD**

'MAKE IN INDIA'

- **'Make in India' announced by Prime Minister, Mr. Narendra Modi "Scheme for Enhancement of Competitiveness of the Capital Goods Sector" Budgetary Support (GBS) from Government 13th Plan period estimated outlay of Rs.930.96 crore.[Rs. 581.22 crore as subsidy & balance Rs.349.74 crore by stakeholder industries]**

INDIAN Textile Industry

- **Supply (DHI) & User Industry (MOT)**
- **Farming- Ginning- Spinning- Weaving [Winding-Warping- Sizing-Looms] – Processing – Garmenting – Apparel (Fashion)**

TOPICS OF PRESENTATIONS

- **Developments done in the Gearing & Drive transmission systems of the hi-tech Weaving machines**
- **Common Drive - individual Drive**
- **Flat belt drive – V-belt drive – Trapezoid belt-pinion**
- **Crank motion – Cam motion**
- **Rotational motion - Oscillatory motion -**

TOPICS OF PRESENTATIONS

Contribution of the developments towards the Productivity & Machine Maintenance

Productivity

Production/Efficiency/Speed/Downtime /Production cost

Maintenance

■ Automation

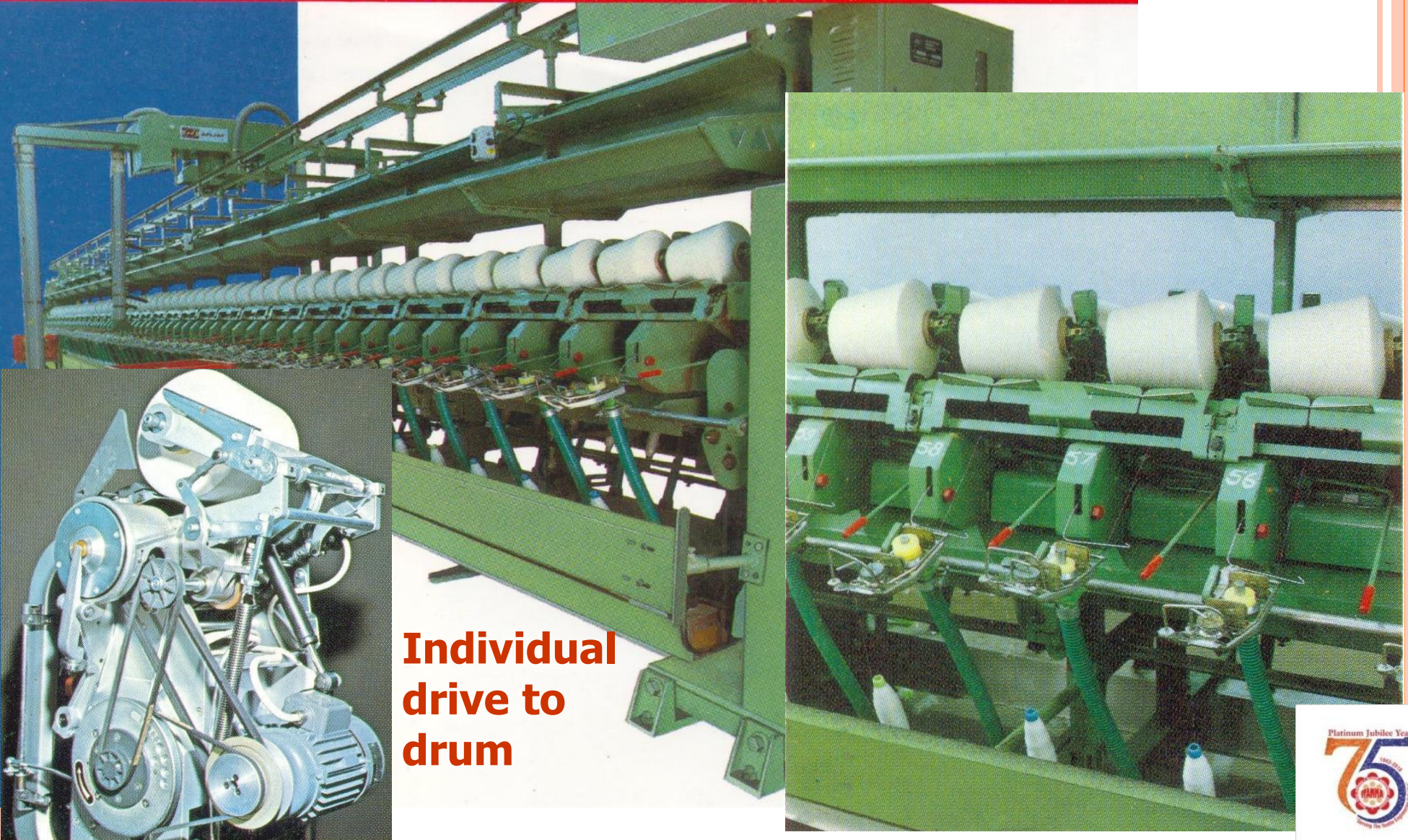
- elimination of process
- introduction of electronics/pneumatics/hydraulics

Drive

- Maintenance Cost
- Life of spares
- Loss of material & Downtime
- Manpower
- Lubrication

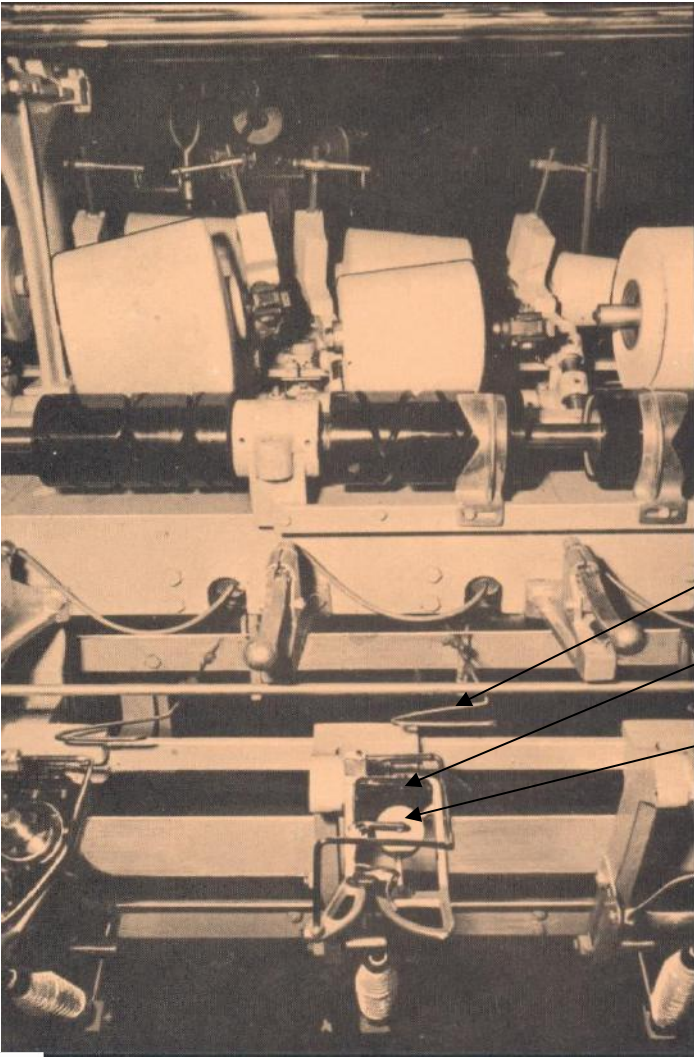
COMMON DRIVE TO DRUM

HIGH SPEED CONE WINDER MACHINE

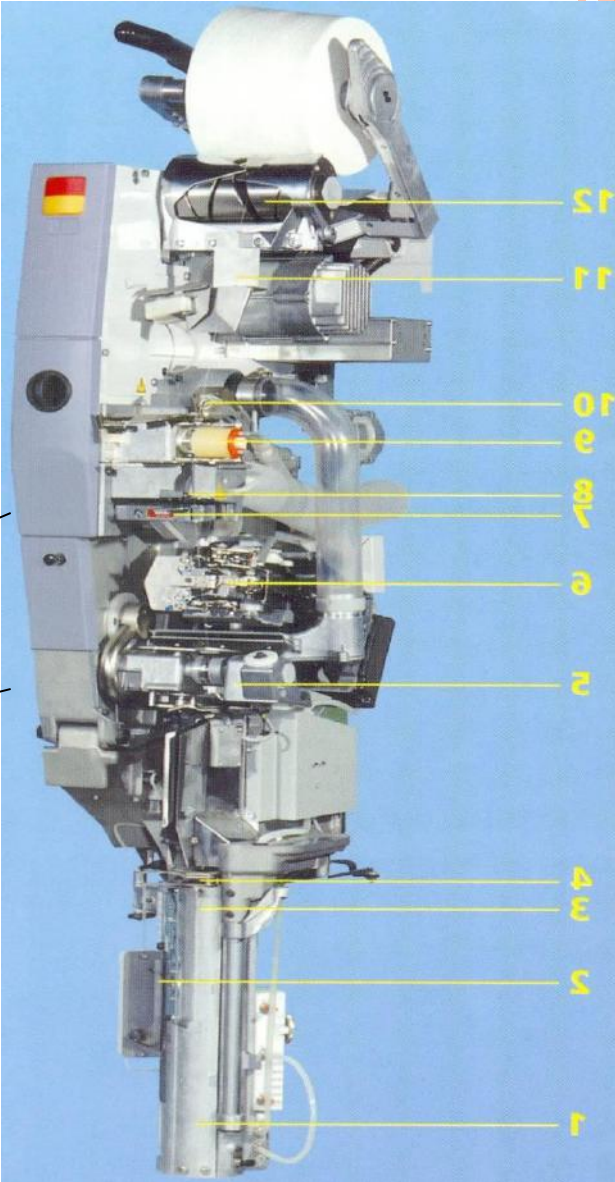


**Individual
drive to
drum**

YARN TENSIONER (5), YARN CLEARER (7), STOP MOTION (10)



MECHANICAL TYPE



ELECTRONIC TYPE

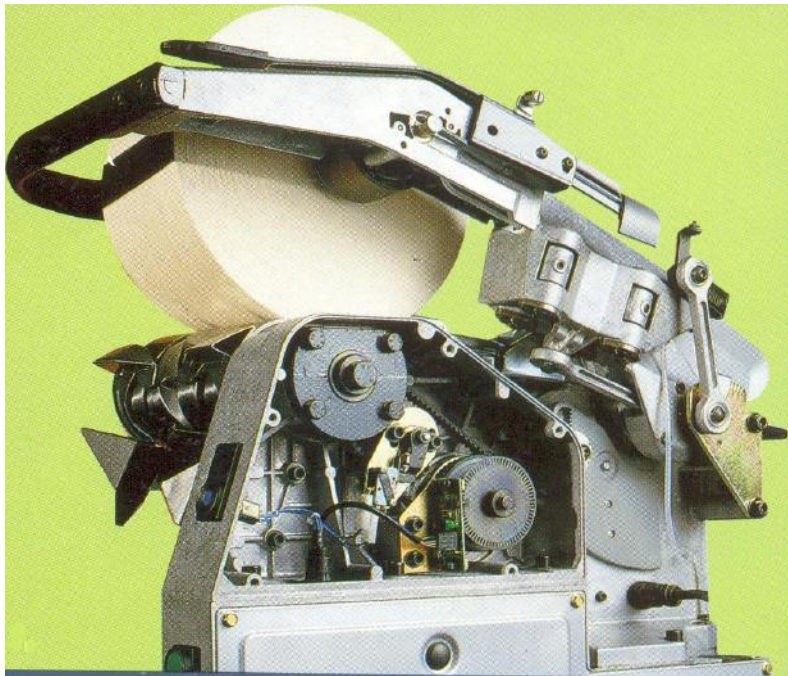


MACHINE MAINTENANCE

Conventional

Yarn clearers, tensioners and stop motions are mechanical type – more lubricants

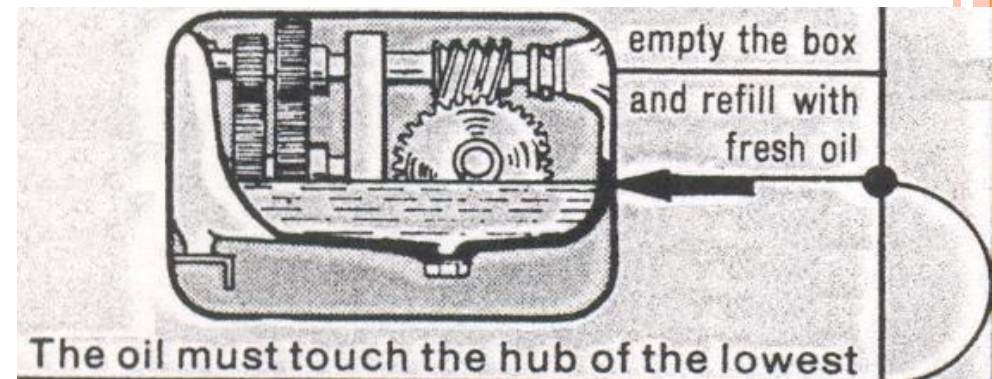
Cradle functioning mechanical

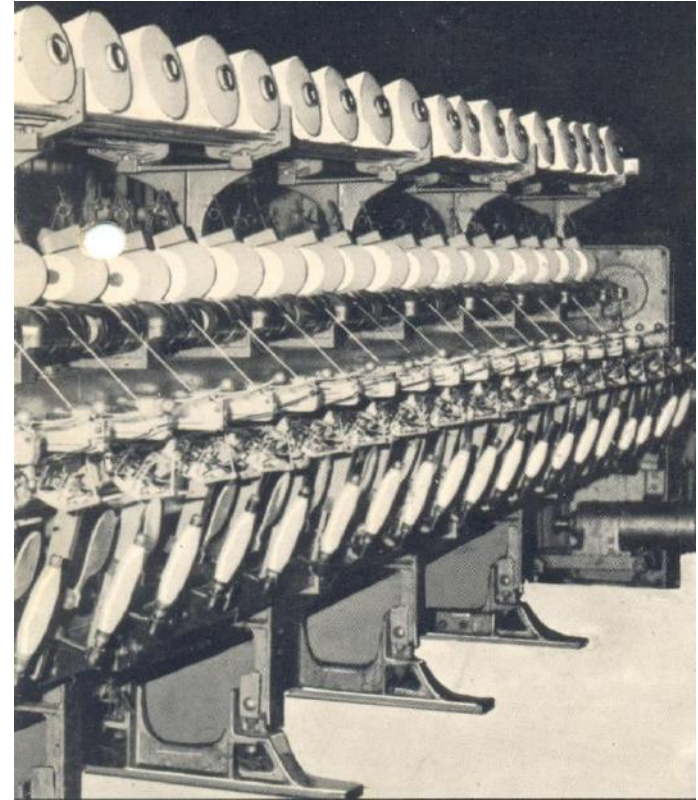
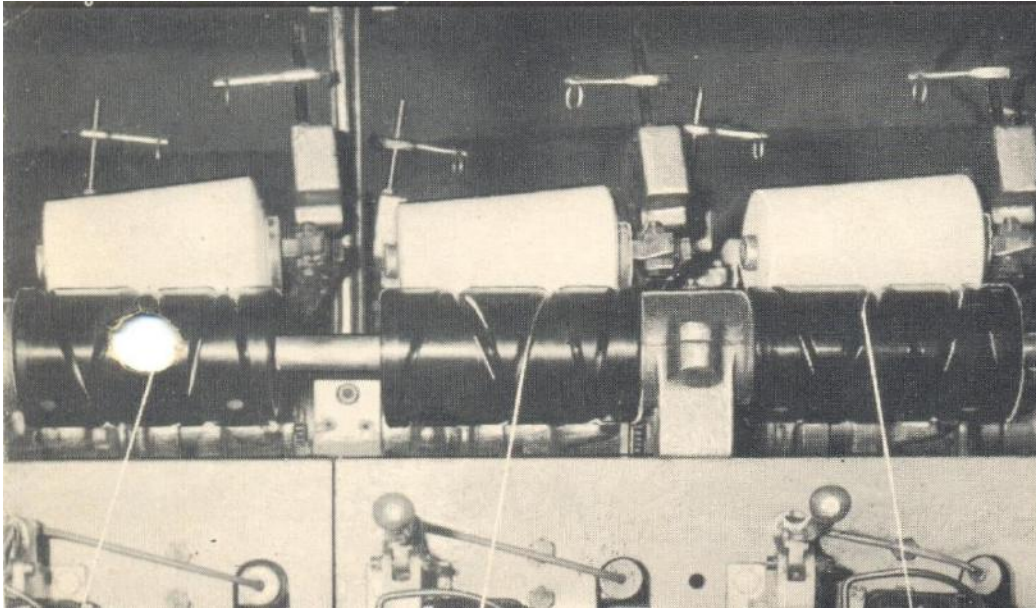


Hi-tech

Pneumatically and electronically control

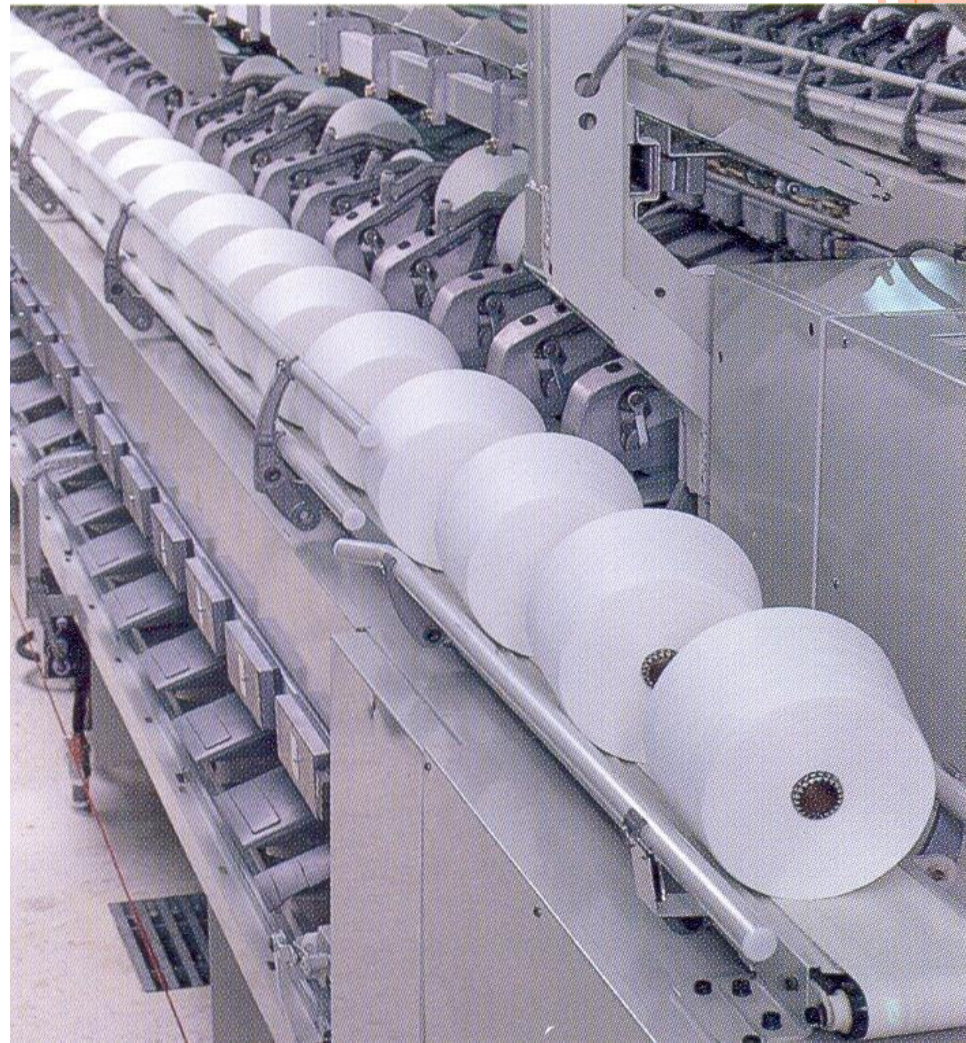
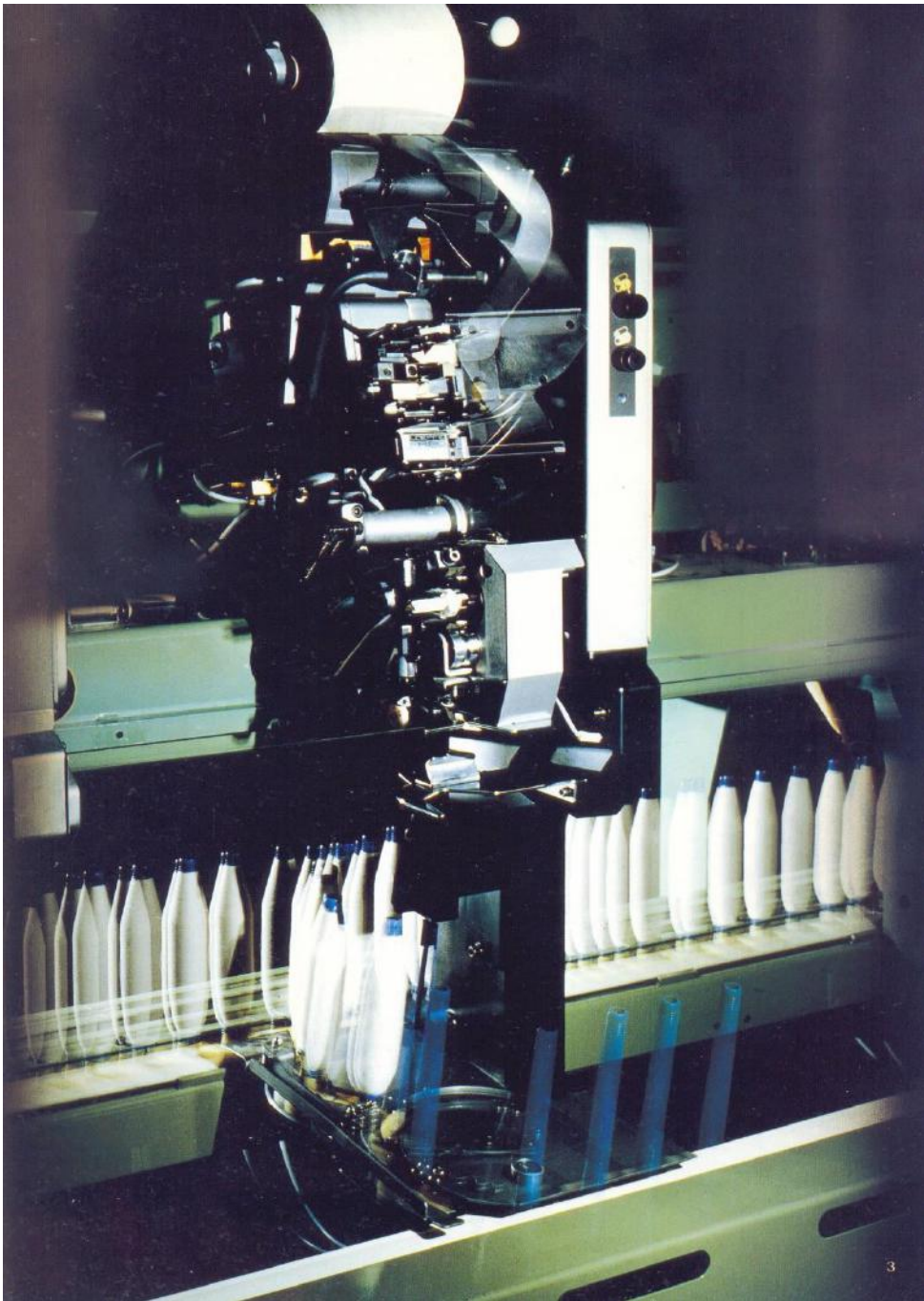
Cradle functioning with oil filled hydraulic dampers





**STARTING AND STOPPING THE MACHINE MANUALLY
THROUGH STARTING HANDLE**

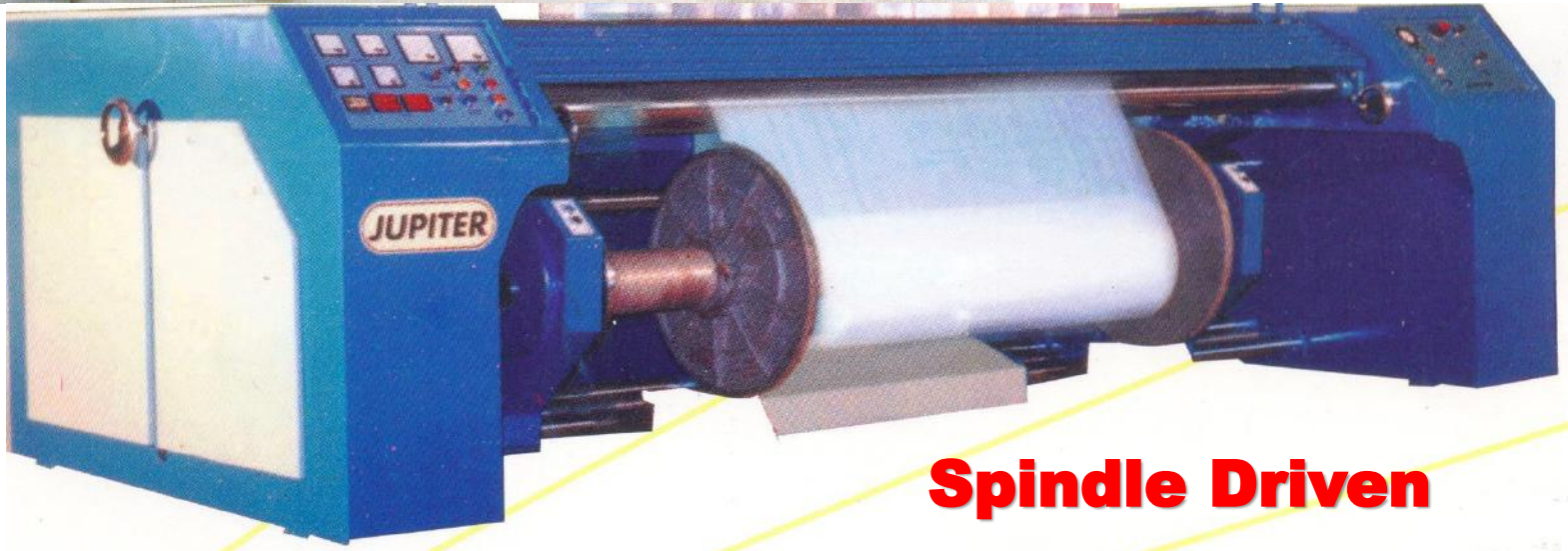
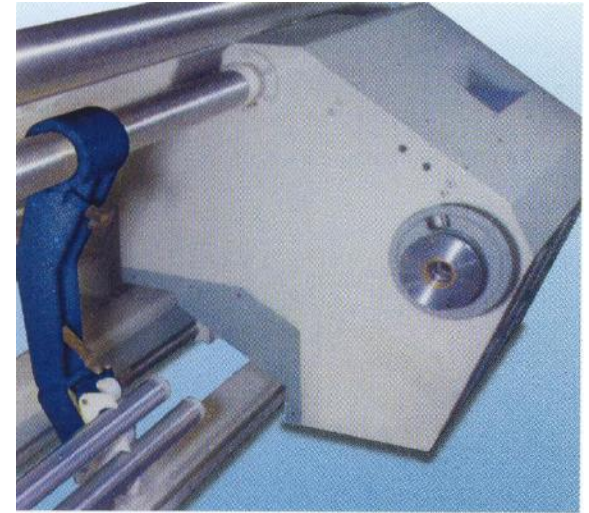
CONE AND BOBBIN DOFFING MANUALLY



BOBBIN AND CONE AUTO DOFFING



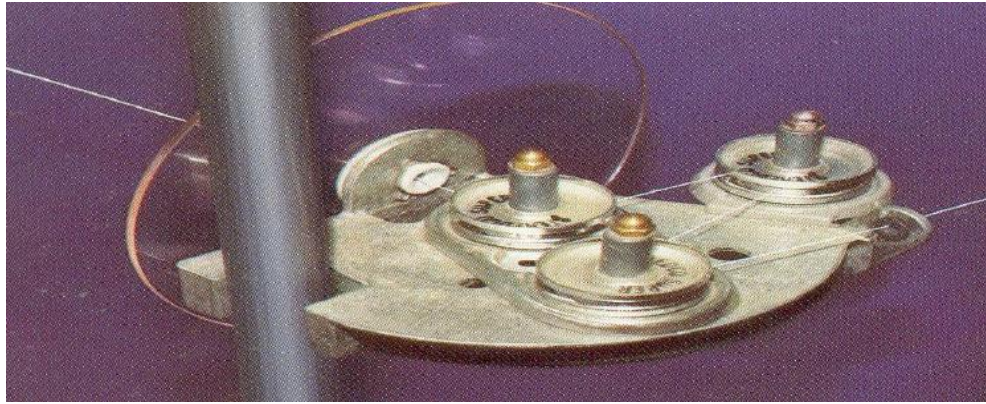
Direct Warper (Drum Driven)



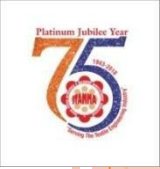
Spindle Driven



Mechanically Control



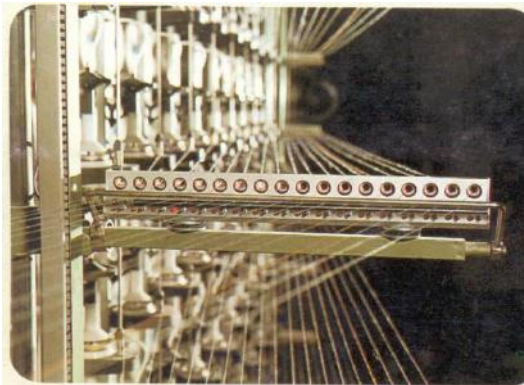
YARN TENSIONER



Rod bar Tensioning System



Pneumatically Control

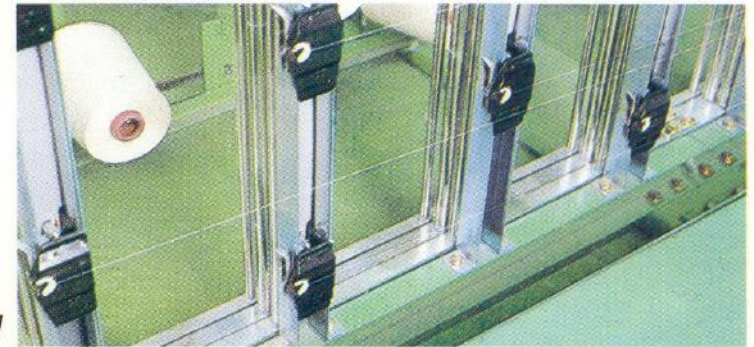


Optic Feeler

① STOP

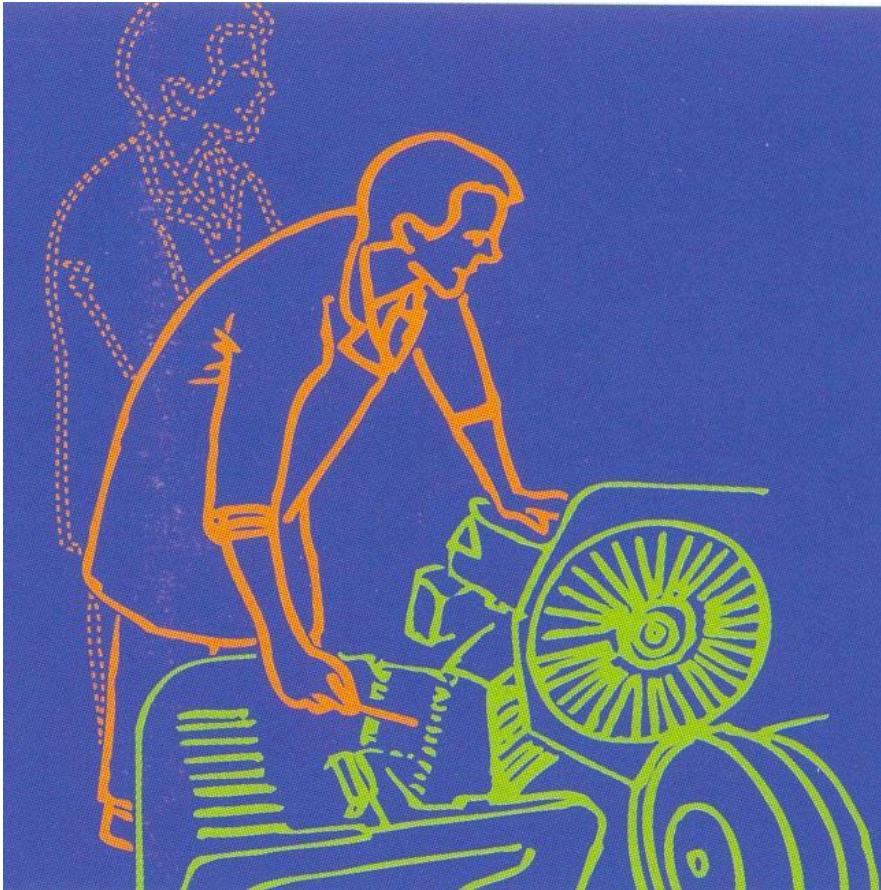


② RUN



③ OPEN

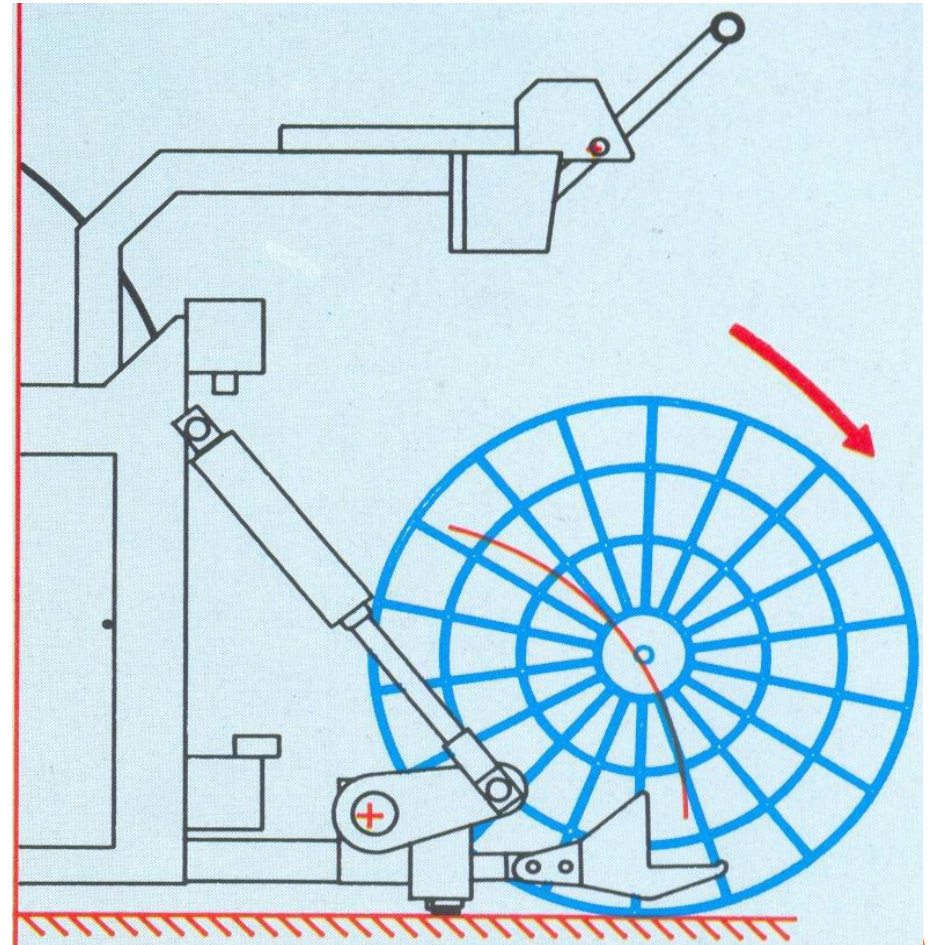
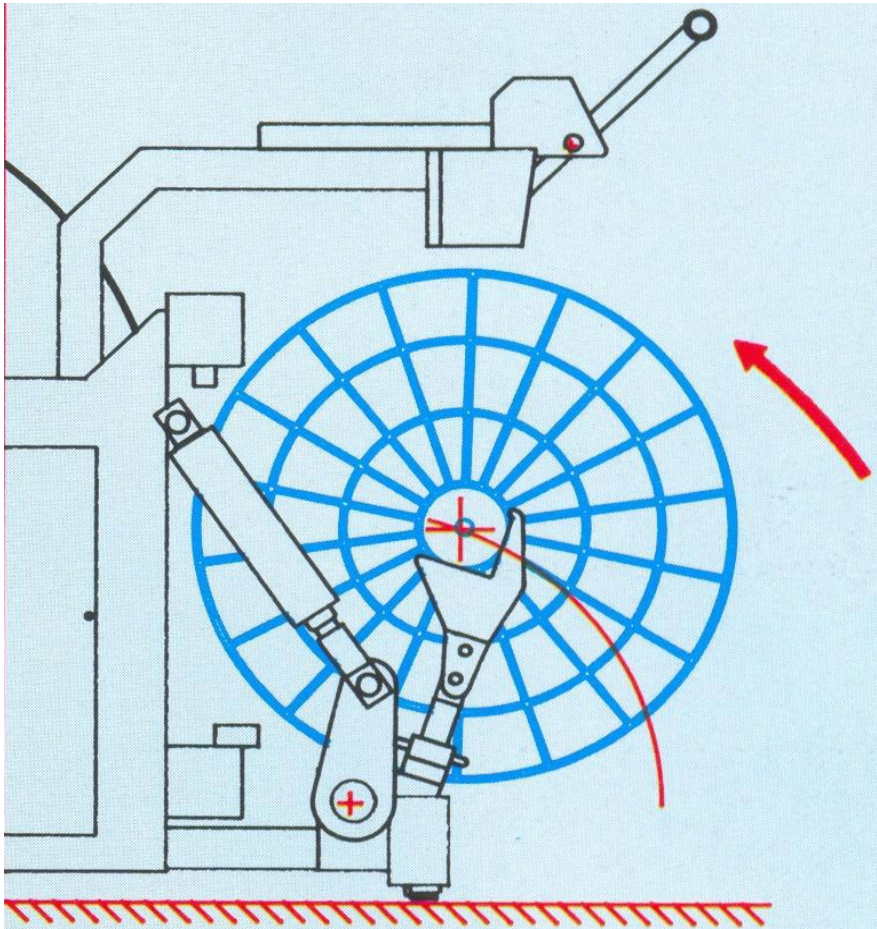




MANUAL LOADING AND UNLOADING BEAM



AUTO LOADING/UNLOADING BEAM

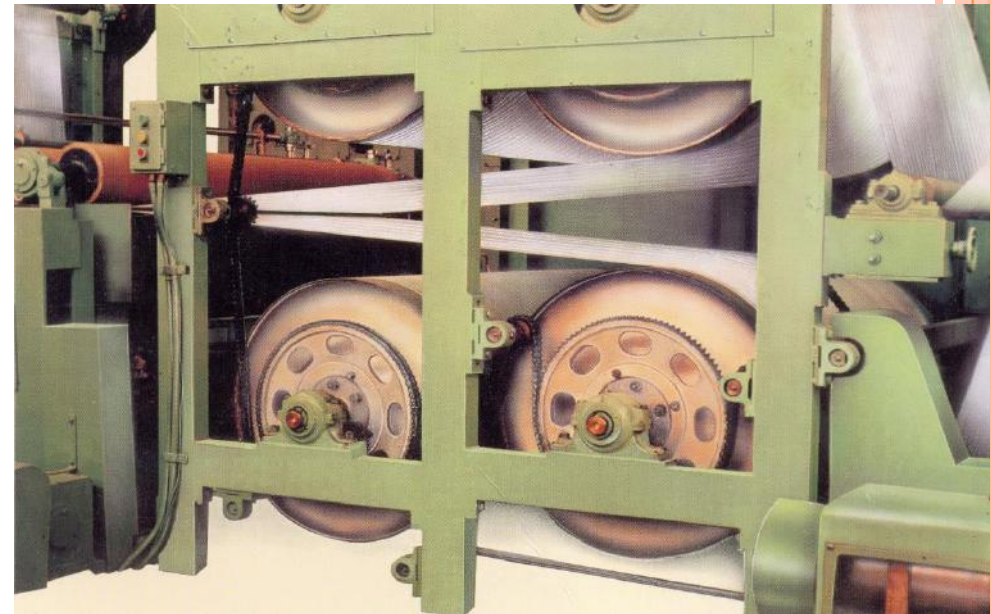


MACHINE DEVELOPMENT



Sow Box

Sizing Cylinders



Shuttle

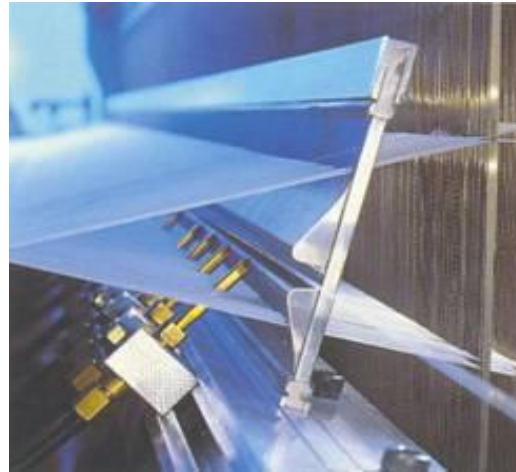
(L-30 cms, W-430 gms,)

Pirn

(W-25 gms, Weft-2500 mts)

Cone - 1 lakh mtrs.

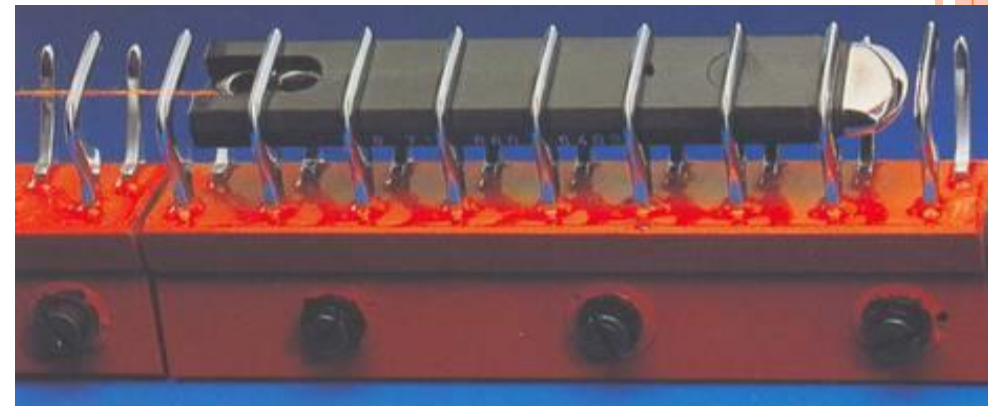
Air-jet Nozzle



Rapier Head

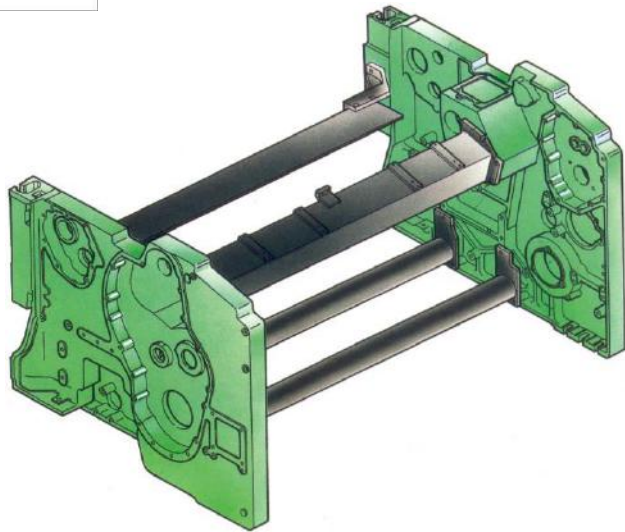


Shuttle

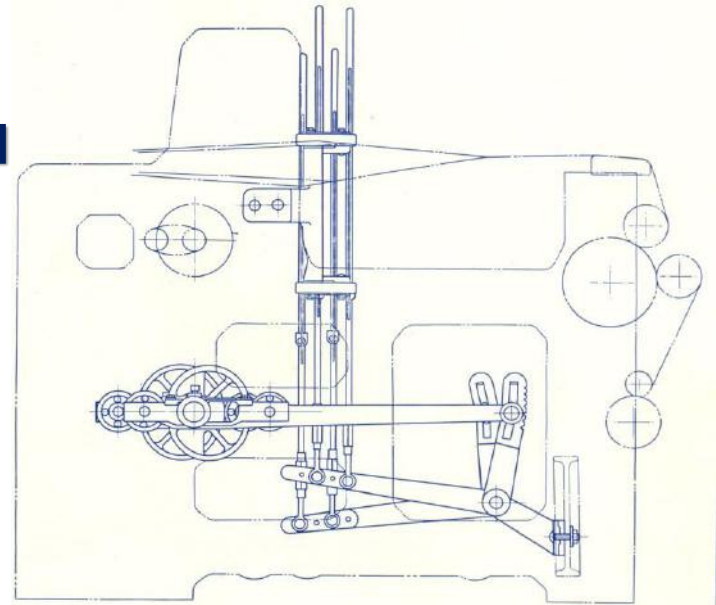


Projectile : 9 cms long and 40 gms weight

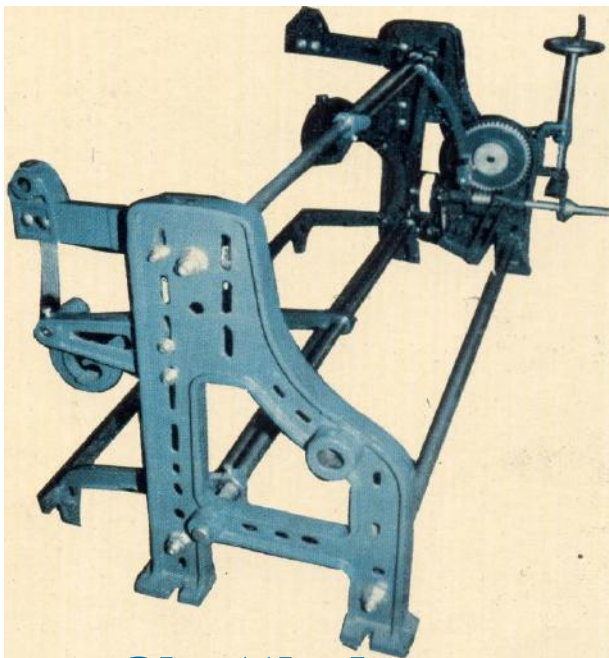
DEVELOPMENTS IN MACHINE DESIGN AND MAINTENANCE



Shuttleless with oil pockets



Shedding Linkages

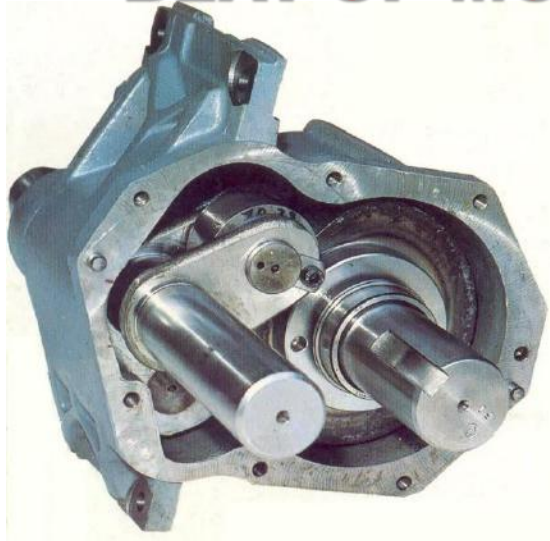


Shuttle Loom

Shedding Cams in Oil Bath



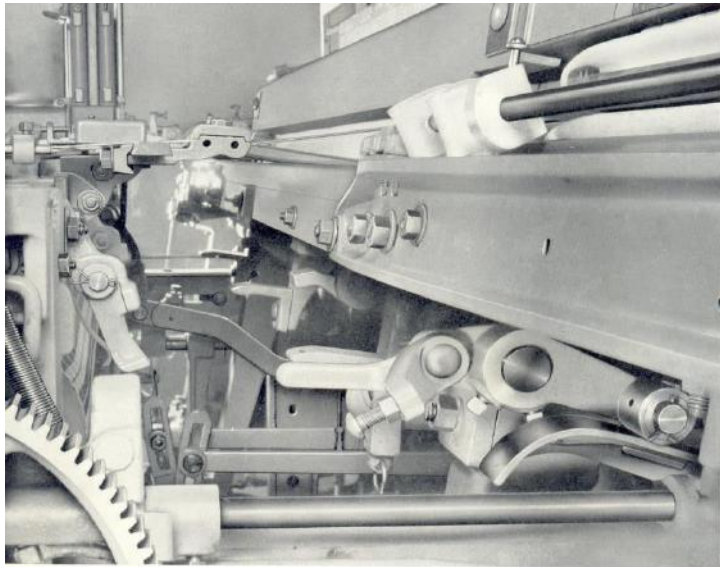
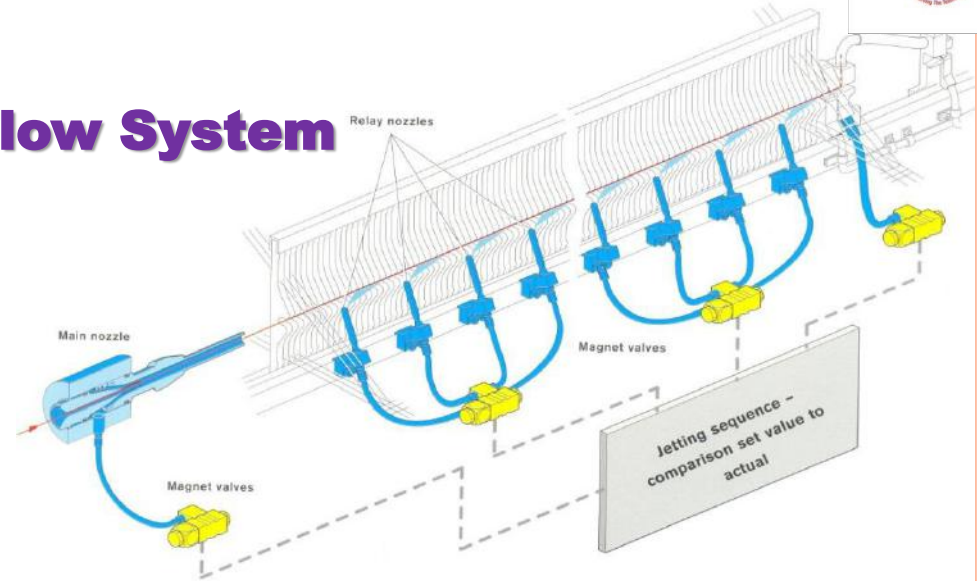
BEAT-UP MOTION



Cam Beat-up in Oil Bath

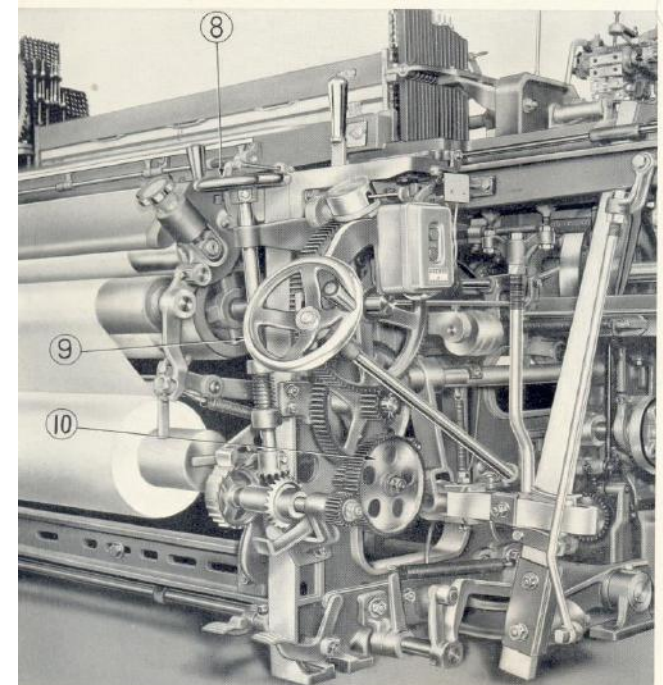
PICKING MOTION

Air-jet Air Flow System



Picking Motion

Open Crank Arm Beat-up



SHUTTLE LOOMS

Ruti 'C' : 25 ltrs/loom/year

30 kg/loom/year

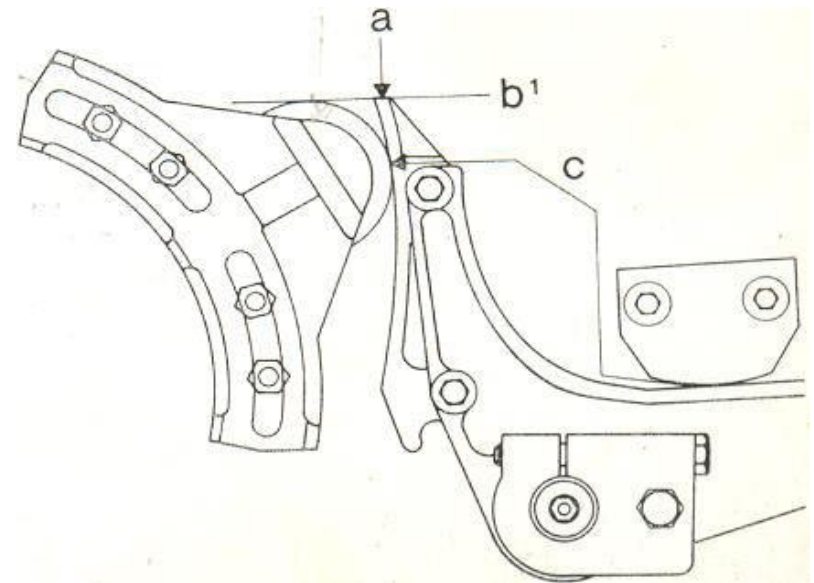
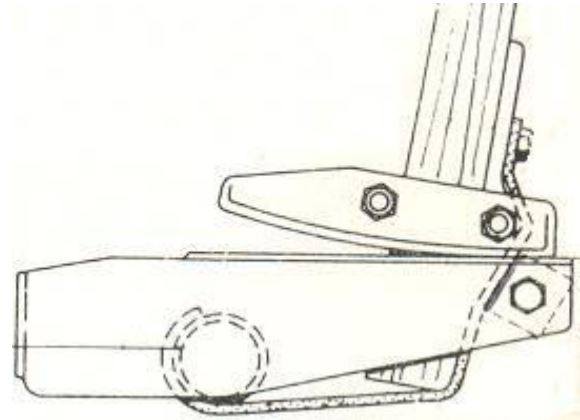
Picking Stick Spring/Bowl/ Cam

Special Textile Oil : Weltac Oil

- Avoids splashing of oil, reduces heat generation due to heavy impact of two metal parts and thereby wear and tear and reduces the noise level

Mechanical Parameters :

- Very high impact of picking bowl with cam to achieve a required picking force (chances of transferring stains on the fabric)
- Unwinding and winding action of picking stick spring at high force @ 125 times/min.



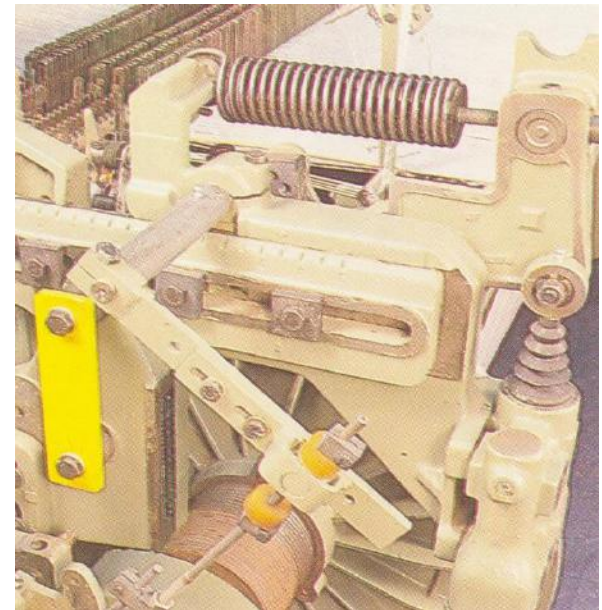
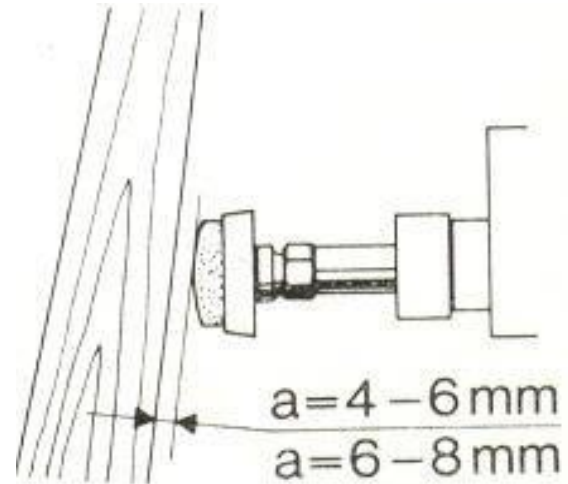
ZAMA BUFFERS & HYDRAULIC DAMPERS

**Oil Category : Hydraulic Oil
(32 to 450 cst at 40°C)**

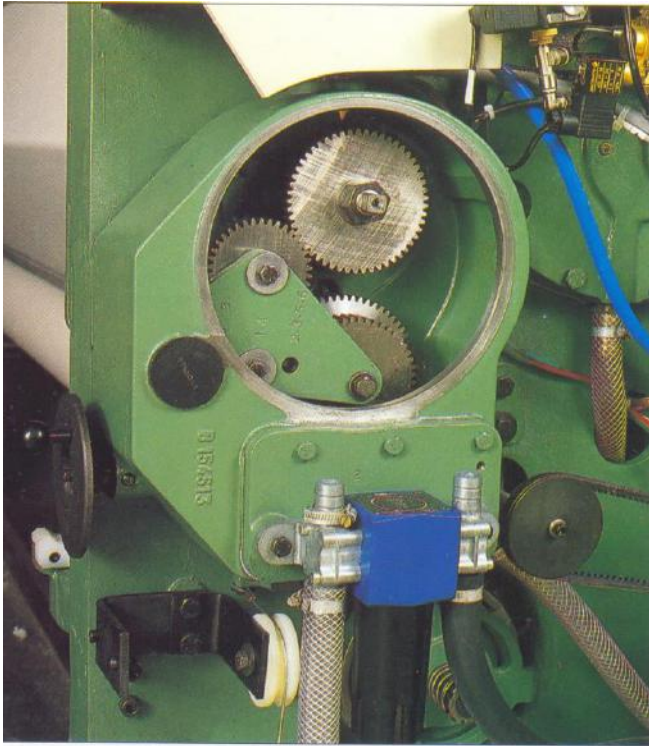
- Easily transmissible through the hydraulic pipe line. At the same time gives required pressure/force to carry out braking action or mechanical movement

Mechanical Parameters :

- Absorbs the back force of picking stick @ 125 times/min and avoids rebounding
- Absorbs damping action of back rest roll having its own weight along with warp tension @ 240 times/min

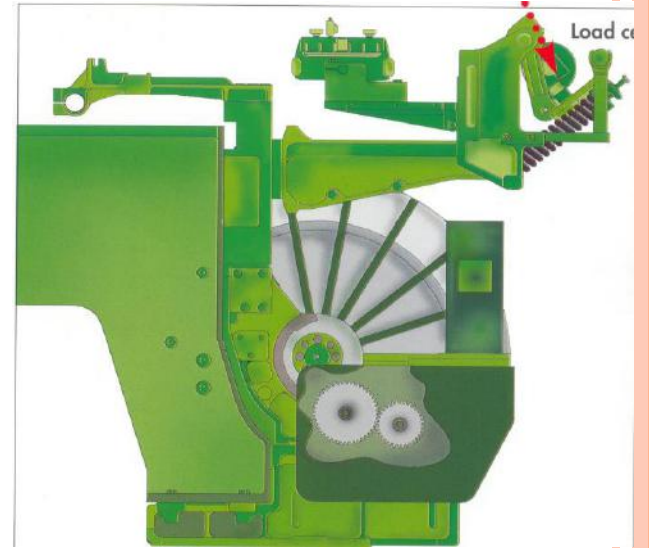


TAKE-UP MOTION

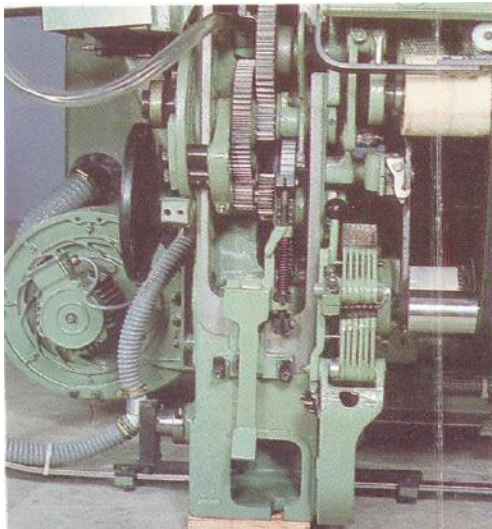


**Take-up
Wheels in Oil
Bath**

LET-OFF MOTION

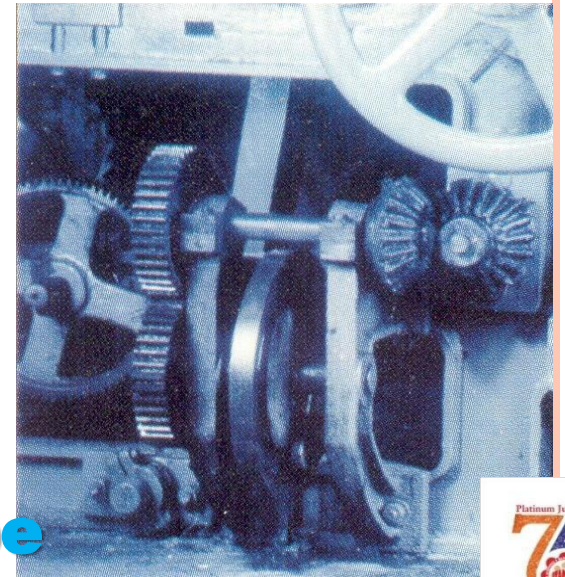


**Positive Type Gears in
Oil Bath**



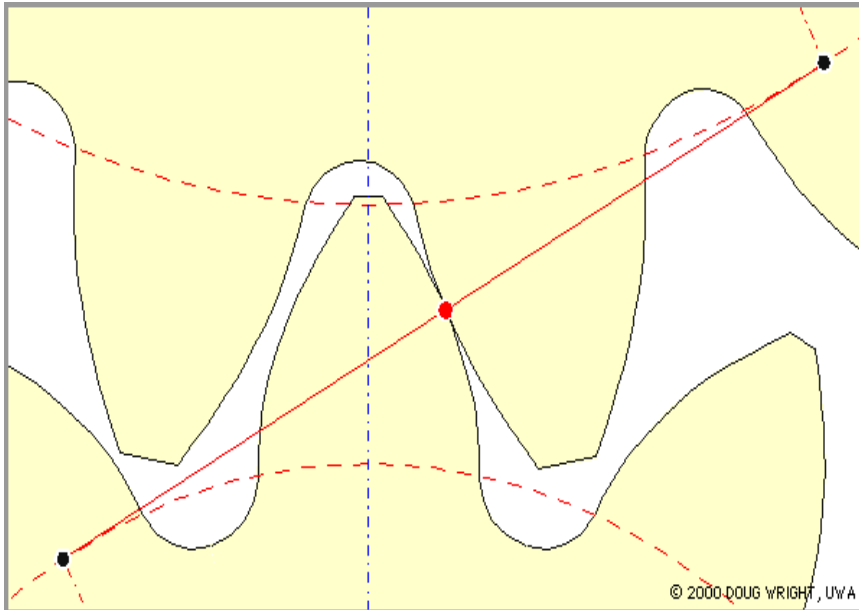
**Open Lubrication for
Take-up Wheels**

Semi Positive Type



LUBRICATION

◆ CENTRALISED LUBRICATION



- CLEAN FILTERED OIL FORCED WITH REQUIRED PRESSURE FOR LONG PERIOD
- REDUCE FREQUENCY OF OIL CHANGE
- LESS OPERATIVE COST
- LESS MACHINE DOWNTIME
- NO OIL CONTAMINATION
- NO PART STARVING FOR LUBRICATION



Advantage of development in the Gearing & Drive Systems



	CONVENTIONAL	HI-TECH
Available Width (cms)	180	540
Speed (rpm)	110-150	600-1000
Weft colour Selection	1	4-16
% of Efficiency losses on Cleaning/Lubrication/OH, etc.	9.3	nil
Weft Packages for weaving 100 mtrs fabric	379	5.5
Looms/weaver	4	12
Average Salary (Rs)	7000	10000
Labour cost for inserting 10,000 picks (Rs/pc)	43.40-	11.90
Power consumption per loom shift of 8 hrs (Units)	8-8.8	17.6
Hard Waste (mtrs)	50	15

Cost of spares , Accessories & Lubricants

Loom type	Maintenance Cost / Loom Shift of 8 hrs (Rs)	Lubricant cost/ Loom Shift of 8 hrs (Rs)	Media of weft transfer cost (Rs)	Media of weft transfer quantity /1000 loom shifts
Conventional	20-30	5 - 7	2,600	3.33
Hi-tech	60-80	1.56-3.94	167	7.77

Savings – E- control process

Economical

- Short Process
- Low Chemical Costs

Environmentally Friendly

- Minimal Chemical Usage

Energy Saving

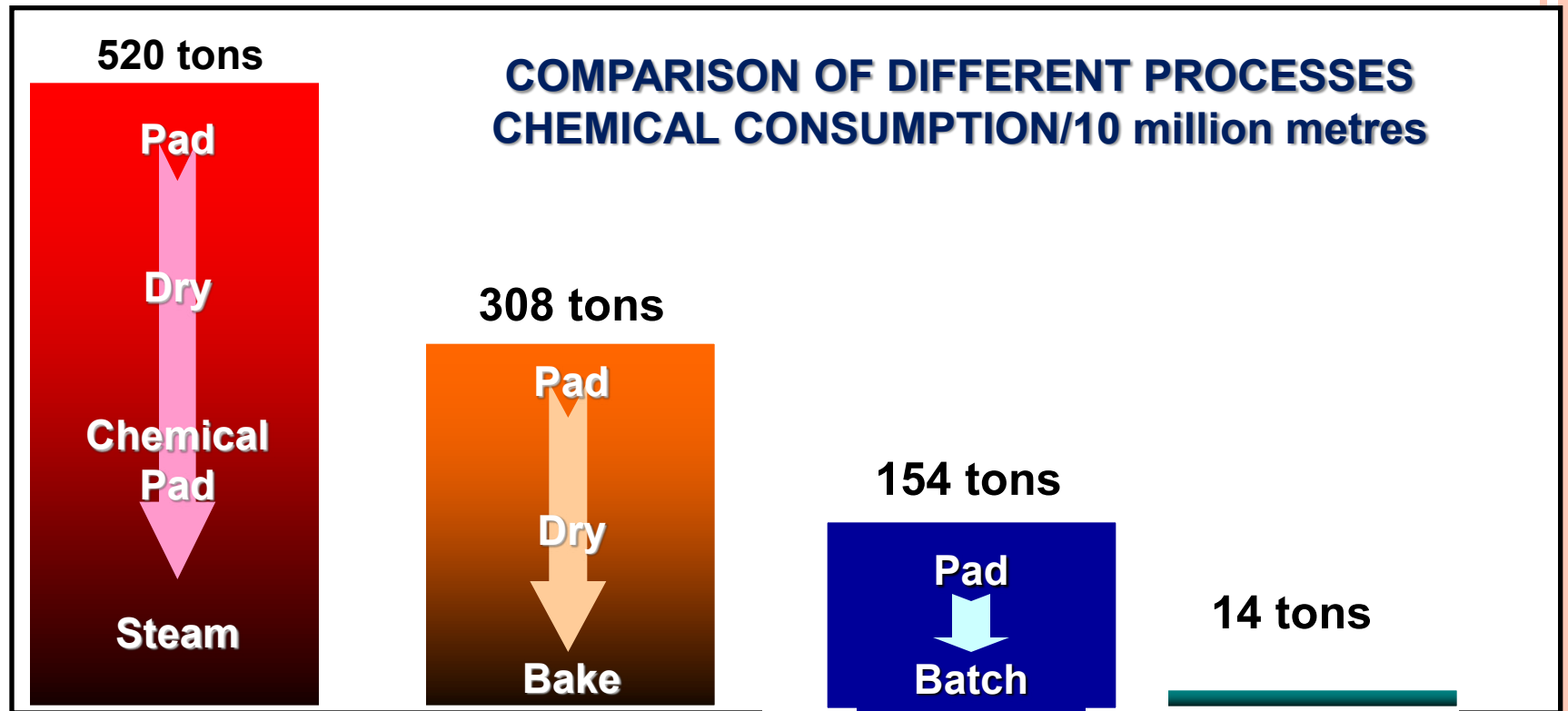
- No Steamer Required

Efficient

- Excellent Reproducibility
- One Stage Process
- Minimum Machinery Requirements



Chemical consumption in continuous dyeing

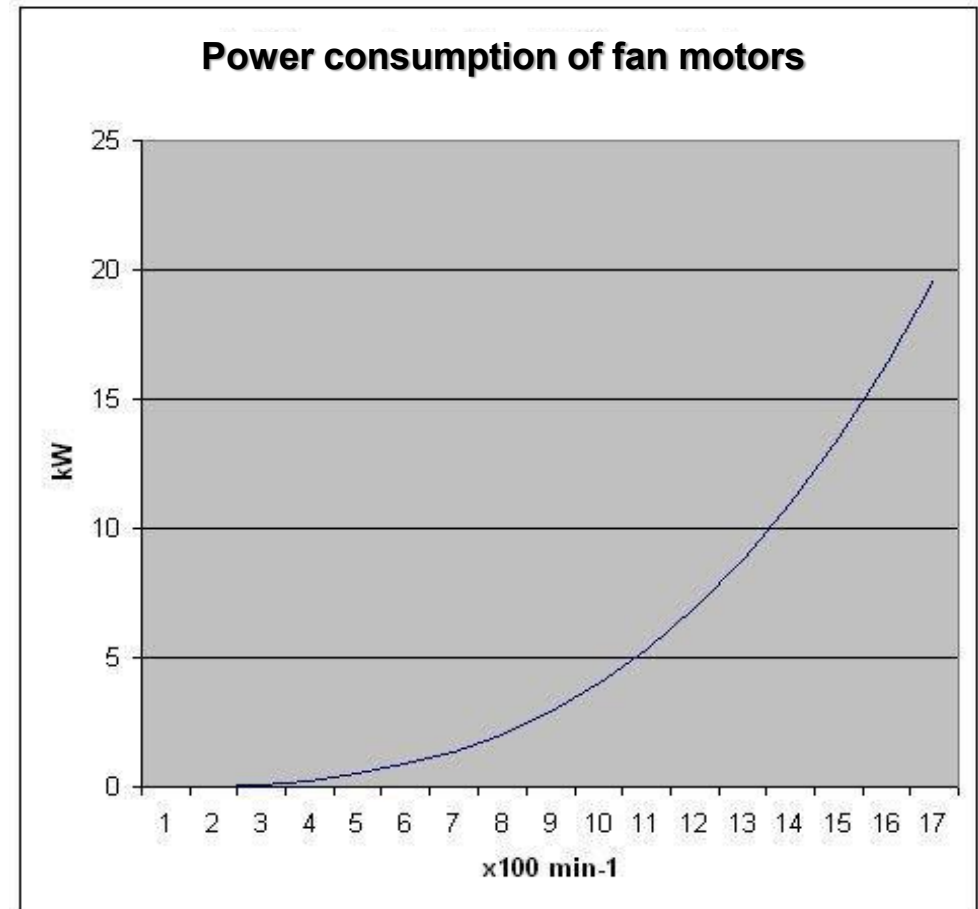


ECONTROL

ENERGY CONSUMPTION AS A FUNCTION OF FAN SPEED

The energy consumption of the circulating air fans increases by an exponent 3 with the speed: $P \sim n^3$

Consequently a reduction in the fan speed from 100% to 75% allows a reduction in the energy consumption of 58%.



VERDOL'S CUTTING-EDGE TECHNOLOGY FOR TIRE CORD MANUFACTURING

**OFFERS COMPLETE RANGE OF DIRECT CABLING
MACHINES CP 10 AND CP 20, FOR TIRE CORD
PROCESSING OF TWO PLYS WITH BALANCED
TWIST IN ONE OPERATION TO PRODUCE UP TO 12
KG BOBBINS FOR USE DIRECTLY IN DOWNSTREAM
PROCESSES.**



TECHNOLOGIES READY TO CHANGE FASHION

3D-PRINTED CLOTHING

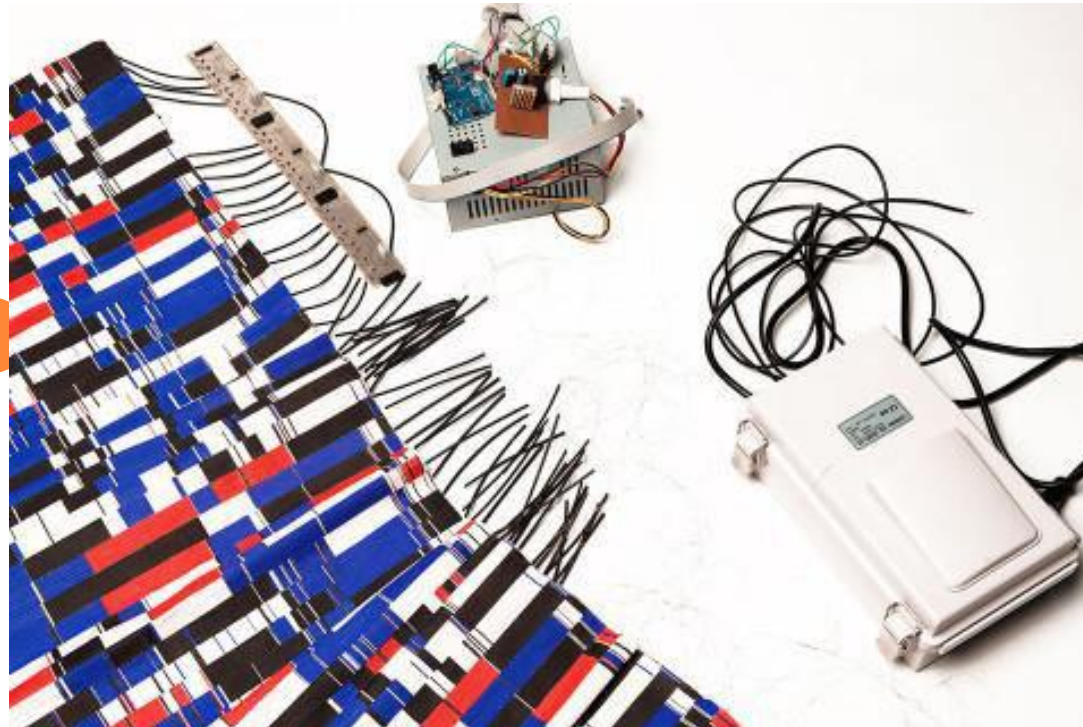
(NIKE'S USE OF THE TECHNOLOGY TO HELP THEM REFINE AND PERFECT PERFORMANCE ATHLETIC FOOTWEAR)



a way to harness electricity from the movement of the human body and use it to power a new kind of **“electronic fabric.”**

Using a very subtle current, the material would trigger super-fine wires woven into its makeup to change its color or illuminate according to the wearer’s actions

a fabric that can charge itself via the body and store energy independently, using it to completely change in appearance at the wearer’s discretion.



Cutting-Edge Technology for Food, Cosmetics, Chemicals and Sanitary Paper Products

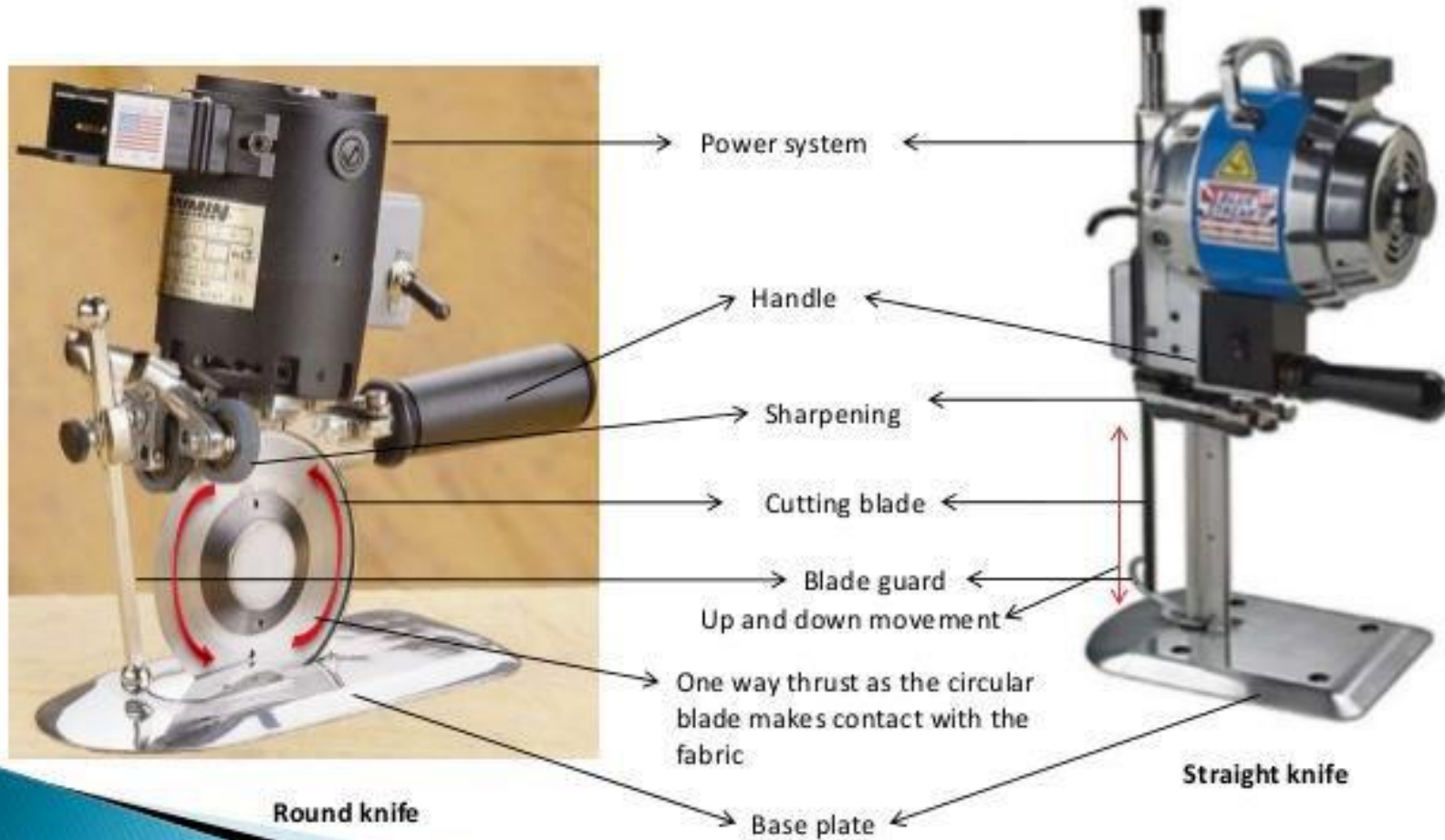


Some of the latest apparel manufacturing technologies



Cutting

Portable cutting knives



*Thank you
for sparing
your valuable time*



*and thanks to
World Trade
Centre Mumbai (WTC)*

