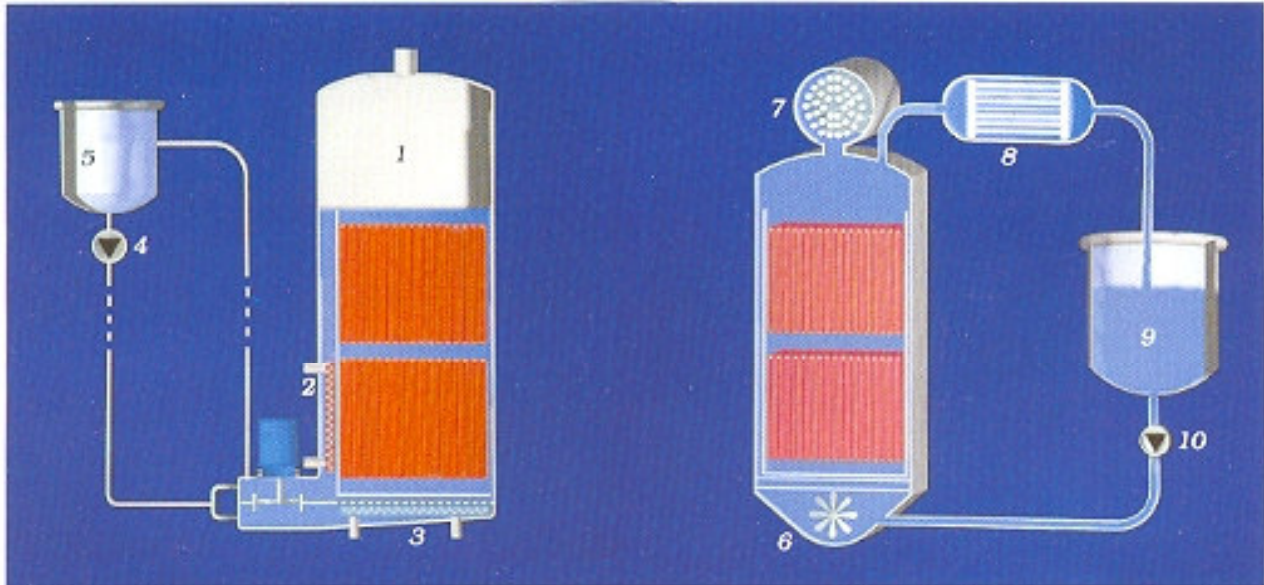


YARN DYEING MACHINES

- Pressure dyeing cabinet of Bellini, Italy
175 kgs – Rs.45 lakh, 225 kgs – Rs.55L, 450 kgs – Rs.60L, 750 kgs –
Rs.80L 1000 kgs – Rs.1 Crore
- Arm dyeing machine of Swastik, India
1 kgs – Rs.3 L, 6 kgs – Rs.4L, 12 kgs – Rs.5L, 24 kgs – Rs.12L, 72 kgs –
Rs.42L
- Horizontal machine of Obem, Italy
200 kgs – Rs.45 lakh
- Vertical machine of Dalal, India
200 kgs – Rs.18 – 20 lakh, 300 kgs – Rs.24 lakh, 600 kgs – Rs.32 lakh,
1000 kgs – Rs.60 lakh
- Vertical machine of Fong's, Hong Kong
200 kgs – Rs.25 lakh, 300 kgs – Rs.30 lakh, 600 kgs – Rs.35 lakh,
1000 kgs – Rs.65 lakh

Indigo warp dyeing machine of Sucker-Müller-Hacoba, Germany

APPC-LV PRESSURE DYEING CABINET OF BELLINI, ITALY

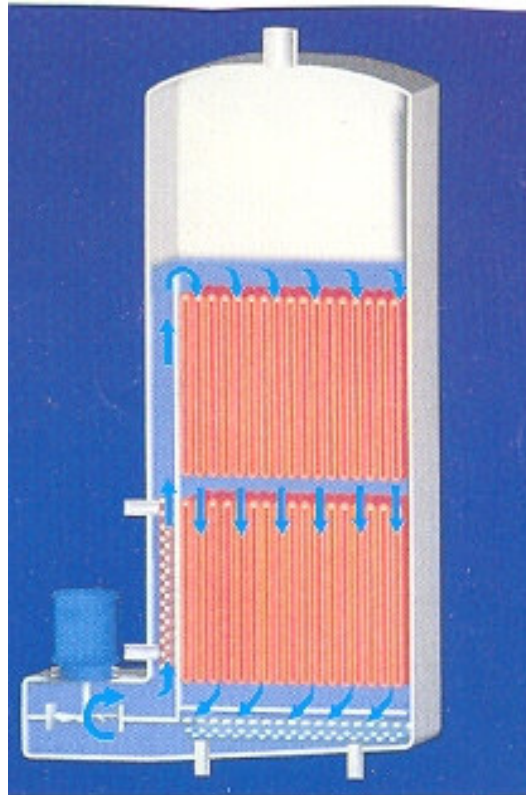


APPC-LV cabinet

- 1-Air pad pressurization
- 2-independent heating exchanger
- 3-independent cooling exchanger
- 4-External reversible axial pump
- 5-Automatic add tank or kitchen

Traditional cabinet

- 6-internal axial pump
- 7-Heat exchanger
- 8-Continuous liquor cooling
- 9-Lateral expansion tank
- 10-Static pump in continuous operation



Salient Features of APPC-LV Pressure Dyeing Cabinet of Bellini, Italy

- Cabinet at 0.4 bar and up to 110° C.
 - Compressed air pad pressure system.
 - Controlled liquor ratios, exhaustion rates and temperature.
 - Low water, steam and power needs.
 - Clean environment with less hydro use.
 - High pressure dye injection to highest velocity point of circulation pump.
 - Faster operations – pressurizing, dyeing, heating, cooling and draining.
 - Low liquor ratios.
 - Full width ‘open’ liquor circulation, shown in *Fig.*.
 - Can dye delicate yarns.
 - Flexible, reliable with automation; automatic door and safety locks.
- Modular interchangeable parts and easy maintenance.

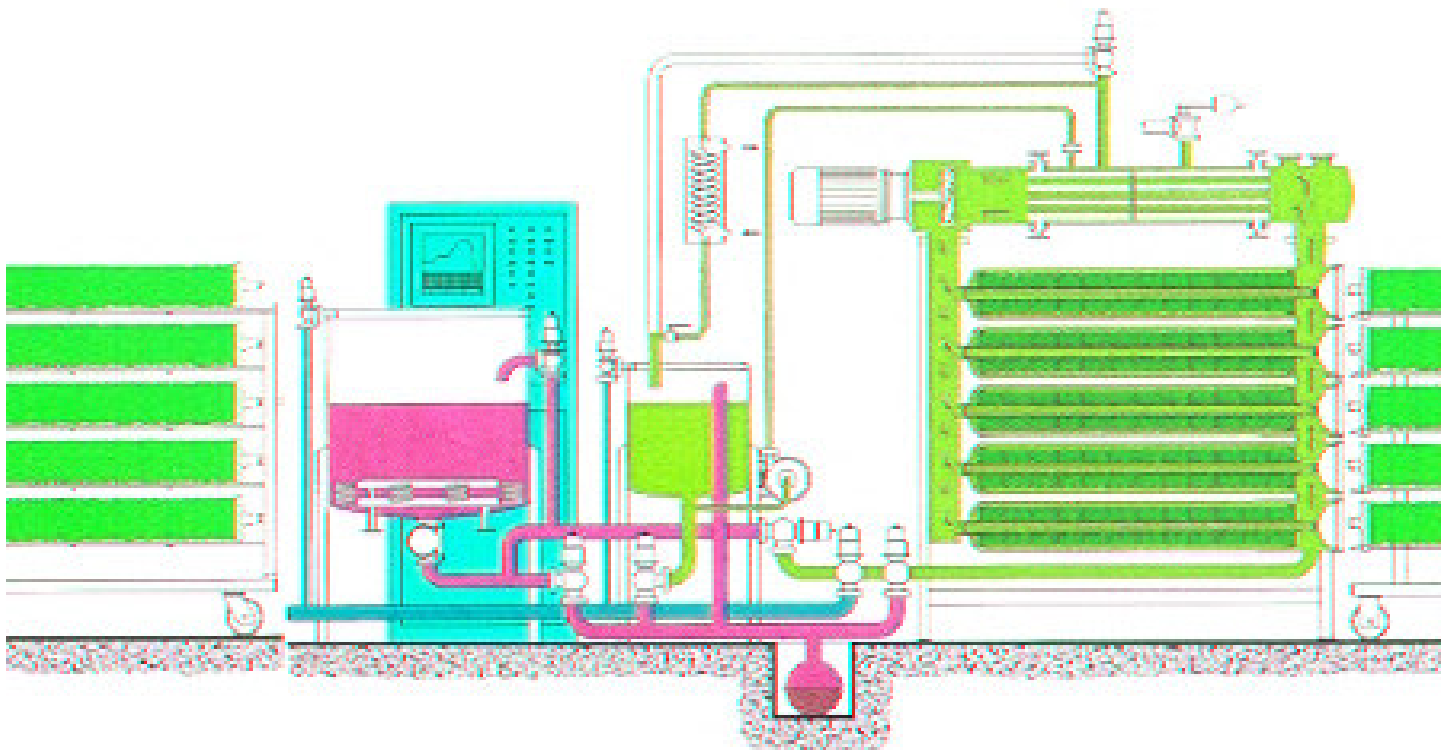
TD ARM DYEING MACHINE OF SWASTIK, INDIA



Salient Features of TD Arm Dyeing Machine of Swastik, India

- Made from ss 316 and equipped with a special low pressure high flow pump having a variable output for recirculation. Its well-balanced hood is fitted with a large view glass.
 - Arms are positively driven in either direction for specified number of rotations. Adjustable liquor flow through the arms as per yarn quality. Stoppage of liquor circulation during yarn rotation.
 - Direct and indirect steaming with temperature controller.
 - Versions with fully automatic/semi-automatic controls. Fully automatic version uses PLCs/microprocessors with automatic operations of the process cycle using a color/chemical feed tank.
- Comes in 1 to 12 arms/tubes and capacities of 1 to 62 kg.

API/O HORIZONTAL MACHINE OF OBEM, ITALY



Salient Features of API/O Horizontal Machine of Obem, Italy

- It is a compact machine needing a free height of only 3.5 mtr by virtue of its special horizontal loading system.
- It can dye lots from 10 kg up to 4000 kg (4 machines in parallel) with available robotization and load flexibility.
- It is modular with its units varied in number and joined together to have infinitely variable loading capacity. Its capacity, small or large, shares the same accessories and with its automatic valves for load reduction and/or dummies, it can work reducing its capacity up to 30% of the full load.
- It can be installed straight on the floor with savings in installation time and costs.
- It optimizes water and energy consumption as it has a liquor ratio as low as 1:3 thereby needing less chemicals too – all leading to a better ecology.
- Its economy is further boosted with its automatic hydro-extracting before drying while minimizing energy consumption at the time of heat exposure of the yarn.
- It handles all kinds of yarn made of natural, synthetic or blended fibres and as packages or warp-beams.

ALLWYN VERTICAL MACHINE OF FONG'S, HONG KONG

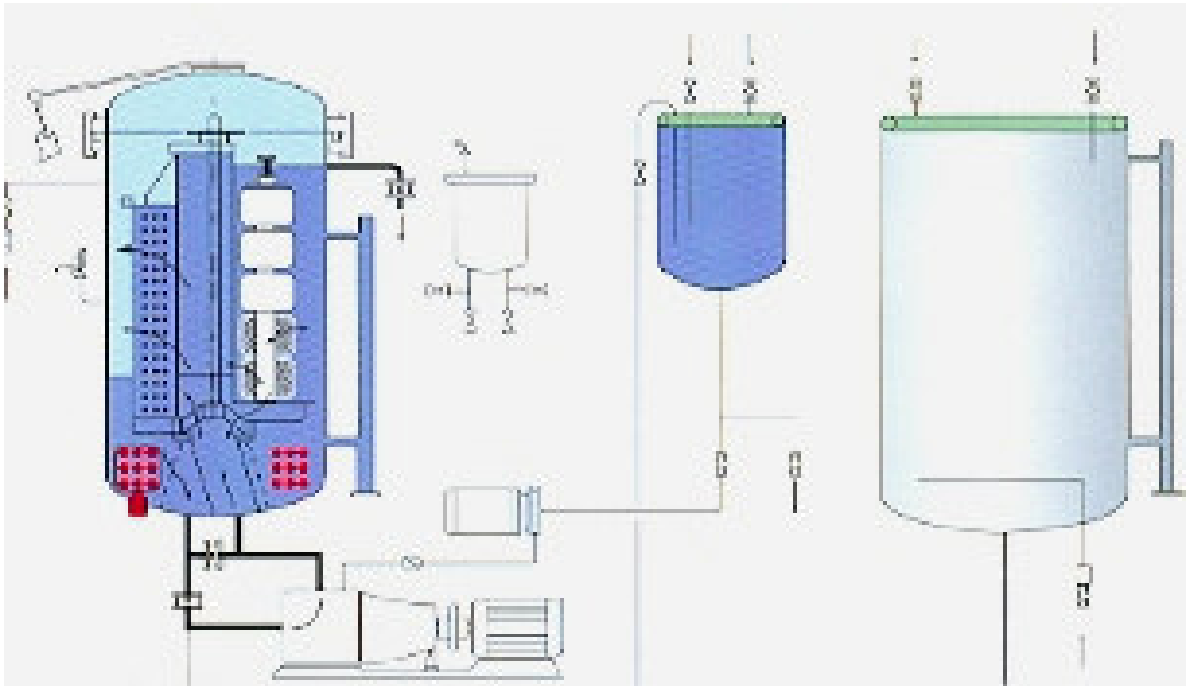


Salient Features of Allwyn Vertical Machine of Fong's, Hong Kong

- Made of corrosion resistant ss with patented heavy duty ss centrifugal REV-pump with mechanical seal and frequency inverter controlled motor
- Fast locking kier cover with balancing weight and lid safety interlocking device.
- Flow reversal valve with automatic flow reversal controls, high efficiency heat exchanger, open service tank and kier pressurization device.
- Main control cabinet with FC 28 microprocessor and fussy logic temperature control software.
- Compact with about 25% space saving, energy efficient and optional MIR multifunction intelligent rinsing system to reduce time and water in rinsing.

- Low liquor ratio of 1:4 with savings in dyes, chemicals and steam along with less effluent discharge.
- Can work up to 140° C with heating at 5 ° C/ min and cooling at 3.5 ° C/min.
- Many versions such as air pad, fully flooded, coupled, double deck and twin kier are available.

H.T.H.P. VERTICAL MACHINE OF DALAL, INDIA



Salient Features of H.T.H.P. Vertical Machine of Dalal, India

- Comes in various sizes and are suitable for processing yarn, fibres, tops, tows and muffs.
- Eco-friendly machine with a liquor ratio of 1:6, resulting in reducing the cost of dyeing besides giving an efficient treatment.
- Its axial flow turbo pump delivers a high liquor flow even through hard packages.
- It has air pad system with liquor flow reversal. Small lots can also be dyed.
- Its controller software is user friendly and accords reproducibility of results

ERDE OF SUCKER-MÜLLER-HACOBA OF GERMANY DYEING (CONTINUOUS) : WARP



Salient Features of ERDE of Sucker-Müller-Hacoba of Germany Dyeing (Continuous) : Warp

- Electrical dyeing of warp yarn as a new study.
- System developed by Innsbruck University, Dornbirn Institute and BASF.
- Reduction of vat dyes by electrochemical means instead of chemical reducing agents.
- As direct electrical reduction is not possible, ‘mediators’ like ‘special iron salts’ are used.
- Benefits include significant savings in chemicals and water together with less effluent pollution.
- Application as shown in the *Fig.* is in indigo warp dyeing for denim products