

The 8th Generation iSmart Dyeing Machine

DONG-A DYEING MACHINERY CO.



All in One
Made in Korea



 **DONG-A**
DYEING MACHINERY

Company Profile

Dong-A is a world class Manufacturer of Dyeing and Finishing Textile Machineries. Originally located in South Korea, Dong-A has been expanding to serve clients around the globe and meet their increasingly discerning needs. From inception of Dong-A in 1985, Dong-A began to develop textile machinery-oriented markets through successful business relationships with global dyeing and finishing market leaders.

With the connections to various international leaders, Dong-A spans a number of dyeing and finishing machinery markets with integrated/ technological/ optimized/ specialized machine features and services in the sphere of textile machinery industry. By identifying the specific needs and requirements of the clients, Dong-A obtains its position in offering both cutting-edge dyeing and finishing machineries and delivers value-added-services for entire turnkey projects to meet specific needs of its clients.

For the future, Dong-A will continuously develop business relationships with various global textile market leaders and will provide differentiating technology oriented machines and value-added-services with superior levels of support and expertise to its customers.

The motivation of Dong-A in its business is complete customer satisfaction and demonstration to exceed client's expectations in all needs at all time.



iSmart SERIES

iSmart is a latest ecologically designed dyeing machine with globally recognized high technological features and is versatile, ideal for diversity of knit articles and varieties of other blends from light to heavy structures. Today the iSmart has achieved inimitable dyeing results and a remarkable success in the optimization of the dyeing process with unique technologies granting reduction of total process time, reduction of liquor ratio, reduction of energy consumption and operation cost while at the same time enhancing the quality of the processed materials. The achievements of substantial savings of water and energy resource consumption have amortized capital investment to customers and created a strong financial competitiveness through maximum cost-effective productivity with uniform quality.

Thanks to iSmart, we wish to invite all customers to experience unbelievable and innovative applications on own products and win the world market challenge with DONG-A DYEING MACHINERY CO. KOREA

Automatic Multi-level Adjustable Square Nozzle Automatic Multi-level Chamber Adjustment System

- Versatile and Free of entanglement despite of light GSM and less loading capacity.



iSmart ATMOSPHERIC DYEING MACHINE

- | | |
|---|---|
| 1) LIQUOR RATIO 1:3.7 ~ | 6) COOLING DOWN RATE: Average 2°C/min (98°C~70°C) |
| 2) FABRIC SPEED: 0-350M/MIN | COOLING WATER SUPPLY PRESSURE: 3 bar, 25°C |
| 3) WORKING TEMP.: MAX.98°C | 7) PROGRAM CONTROLLER: |
| 4) HEATING UP RATE: Average 5°C/min (25~98°C) | DTC 7700 WITH PLC or buyer's requirement. |
| 5) SATURATED STEAM PRESSURE: 7 bar | |



iSmart HIGH TEMPERATURE DYEING MACHINE

- | | |
|------------------------------------|---|
| 1) LIQUOR RATIO: 1:3.7 ~ | 6) COOLING DOWN RATE: |
| 2) FABRIC SPEED: 0-350M/MIN | Average 3°C/min (130~100°C) |
| 3) WORKING TEMP.: MAX.135°C | Average 2°C/min (100~80°C) |
| 4) HEATING UP RATE | COOLING WATER SUPPLY PRESSURE: 3 bar, 25°C |
| Average 5°C/min (25~98°C) | 7) PROGRAM CONTROLLER: DTC 7700 WITH PLC or |
| Average 2.5°C/min (100~130°C) | buyer's requirement. |
| 5) SATURATED STEAM PRESSURE: 7 bar | |

Achievements and Advantages of Dong-A Dyeing Machines, South Korea

1. Process Safety & Quality Assurance:

- Special Injection Device (Patented), ensures level dyeing, even for difficult colors. Special Injection Device and its circulation device create multiple and higher dilution stages for preventing uneven dyeing results during a low liquor ratio dyeing process.

CONSEQUENT HIGHER EFFICIENCY DURING INTER-ACTION WITH A FABIC IN A CHAMBER

LEVEL DYEING

EVENNESS

REDUCED DYEING DEFECT

DECREASING DYEING HR

- Salt Dosing can be programmed, especially useful, for difficult colors like Turquoise and etc, (optional device).
- Automatic Multi-level Adjustable Square Nozzle: characteristic for the weight and variable kinds of fabric
- Low Nozzle Pressure, Max. 0.5 Bar, minimizes surface abrasion and pilling.
- Leveling Spray System (LS System) for additional dyeing and washing effect while fabrics are loaded in a chamber
- Short distance of the fabric traverse from the chamber to the lifter reel.
- Crease preventive operation
- Least tension to a fabric as possible.
- Least generation of lint&fluff

2. Proficiency & Fabric Running ability:

- Tangle free operation is a guarantee, thanks to the TPS System. This is a new fabric plaiting system to lay out the fabric inside of the chamber in orderly manner. By plaiting in multiple directions, tangling problems can be completely avoided.
- Automatic Multi-level Chamber Adjustment System: based on loading capacity and fabric articles in order to prevent entanglement inside. Delicate and uniform fabric running without abrasion or Pilling
 - Synchronized fabric plaiting system for Tangle Free Treatment
 - A high efficient fabric running with reduction of tensions to the fabric
 - Two Rope Loading Capability (40~60 s)
 - Uniform Fabric Treatment even in open-width form

Cotton, Modal, Viscose, Tencel, Rayon, Wool, Acrylic, Tencel, Lyocell, CVC, Nylon, Polyester blended and Lycra blended

3. Profitability & Faster Return on Investment:

- Low liquor ratio 1:3.7 ~
- Specially designed chamber with Efficient Water Cycling system for faster water cycle in the machine: EFFECTIVE DYEING AND WASHING
- Automatic filtering System: automatic fluff filtering during an operation and cleaning during a drain.
Unnecessary manual cleaning is required.
Dyeing defects prevented due to unclean filter
Color Shade difference per batch can be prevented
Maximum rinsing&washing effect
- Considerable reduction in salt, chemical, auxiliary, steam consumption.
- Lowest installed power, hence lowest electrical energy consumption.
- Faster loading is possible, thanks to the TPS system.
- Faster unloading is possible, thanks to the TTP device which enables the fabric to be plaited down in the carrier in order. (optional device).
 - Time saving is given
 - Man power saving is given.
 - Least tension to the fabric during dehydrating stage.
- Can offer 10 kgs to 2000 kgs with a standard chamber size of 250 kgs and also can offer customized machines.

4. Productivity & Delivery Schedules:

- Faster Dyeing cycle, hence enhanced productivity.

Performance & Cost reduction:

Batch time – 4 to 6 hrs, for light to dark shades.

Water consumption – 25 to 40 liters / kg fabric, for light to dark shades.

Electrical Energy – 0.085 to 0.104 KW / kg of fabric.

Small space occupation 0.024~0.061m²/kg fabric

Low acoustic level comparing to Airflow

Utmost optimized inside cleaning by rotary shower system

User Friendly Operation

High versatility

Patents & Technology Leader

• Glauber Salt Dosing System (optional device)

Dosing auxiliary agent in powder state without dissolving in additional water

- Three Dosing Method

Linear Method: automatically inject in linear graph

Dosing Method: automatically inject in curving dosing graph

Partial Method: 1st, 2nd, 3rd separate injections with different amount in linear or curve dosing.

Glauber Salt prepared in advance

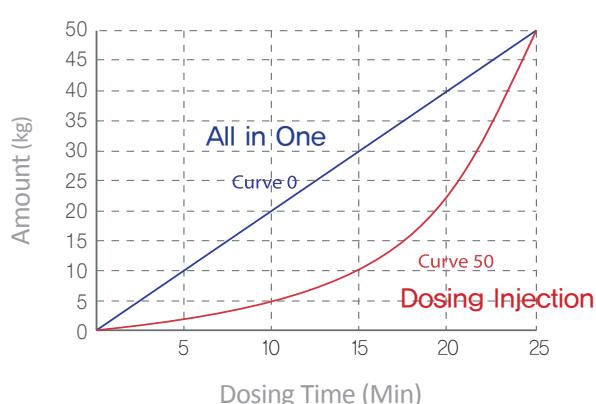
No Extra time required for dissolving with water

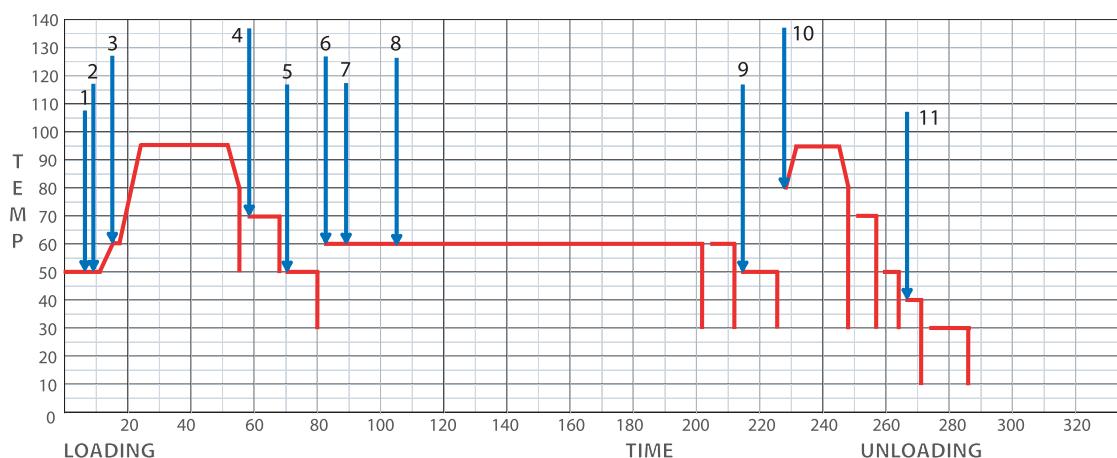
No Extra water required for dissolving with Glauber Salt

Precise and Equal Amount for Reproducibility & Quality Improvement

No loss of time

Quick Dissolving in side of chamber - No Agglomeration





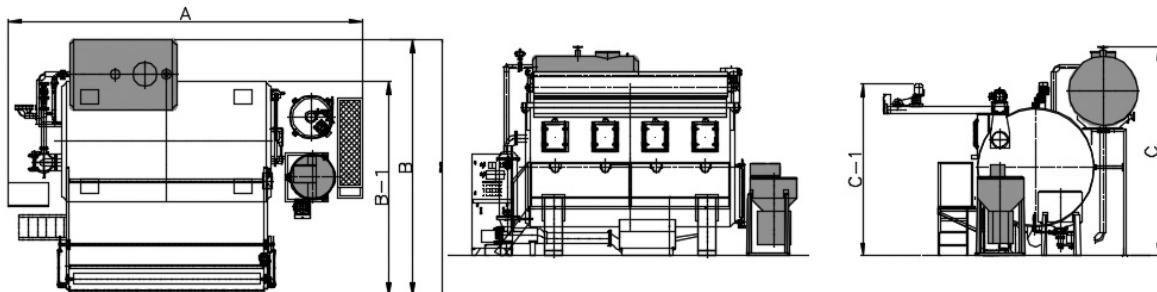
| | | |
|----|--------------------|----------------|
| 1 | WETTING AGENT SA-S | 0.5% |
| | STABILIZER DS-310 | 0.5% |
| 2 | H2O2 PEROXIDE 35% | 3.0% |
| 3 | NAOH 50% | 2.0% |
| 4 | ACID ACETIC 80% | 0.9% |
| 5 | KILLER ULTRA 50L | 0.2% |
| 6 | GLAUBER SALT | 30 gram/liter |
| | YELLOW S3R 150% | 0.162% |
| 7 | RED BSF | 0.61% |
| | BLUE BB 133% | 0.022% |
| 8 | SODA ACID | 3 gram/liter |
| | SODA CAUSTIC 50% | 1.2 gram/liter |
| 9 | ACID ACETIC 80% | 1.2% |
| 10 | SOAPING RS | 0.25% |
| 11 | ACID ACETIC 80% | 0.2% |

ITEM : 100% COTTON 30S / 30D JERSEY
 MACHINE CAPACITY : HTHP 1000kg (4 Chambers)
 COLOR : ROSE GARDEN
 LOADING : 1002kg, GSM : 220g
 WIDTH : 1829mm, TOTAL METERS : 2492m

| ENERGY CONSUMPTION | |
|--------------------|--------|
| LtH2O / Kef | 30.67 |
| Kg steam/Kgf | 1.32 |
| Kw/h / Kgt | 0.0973 |

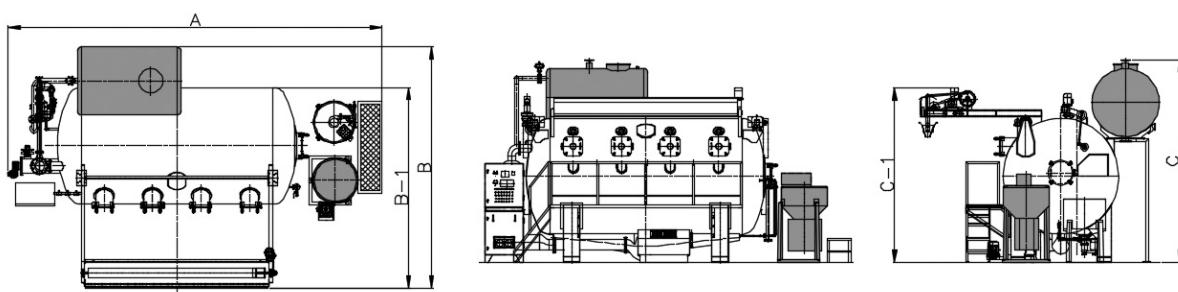
Tested by Korean textile Association and Korean dyeing houses

iSmart Atmospheric Dyeing Machine



| LOW TEMPERATURE | NO. OF TUBES | LOADING CAPACITY (KG) | MAIN PUMP (KW) | CONNECTED LOAD(KW) | DIMENSIONS(MM) | | | | |
|-----------------|--------------|-----------------------|----------------|--------------------|----------------|------|------|------|------|
| | | | | | A | B-1 | B | C-1 | C |
| iSmart1A250 | 1 | 250 | 5.5 | 10 | 3780 | 4320 | 5145 | 3480 | 4210 |
| iSmart2A500 | 2 | 500 | 11 | 16.2 | 4800 | 4320 | 5145 | 3480 | 4210 |
| iSmart3A750 | 3 | 750 | 15 | 22.45 | 5860 | 4320 | 5145 | 3480 | 4210 |
| iSmart4A1000 | 4 | 1000 | 22 | 30.15 | 7100 | 4320 | 5145 | 3480 | 4210 |
| iSmart5A1250 | 5 | 1250 | 30 | 41.1 | 8210 | 4320 | 5145 | 3480 | 4210 |
| iSmart6A1500 | 6 | 1500 | 30 | 43.4 | 9400 | 4320 | 5145 | 3480 | 4210 |
| iSmart8A2000 | 8 | 2000 | 37 | 51.8 | 11510 | 4320 | 5145 | 3480 | 4210 |

iSmart HTHP Dyeing Machine



| LOW TEMPERATURE | NO. OF TUBES | LOADING CAPACITY (KG) | MAIN PUMP (KW) | CONNECTED LOAD(KW) | DIMENSIONS(MM) | | | | |
|-----------------|--------------|-----------------------|----------------|--------------------|----------------|------|------|------|------|
| | | | | | A | B-1 | B | C-1 | C |
| iSmart1H250 | 1 | 250 | 5.5 | 10 | 4200 | 4170 | 5045 | 3630 | 4210 |
| iSmart2H500 | 2 | 500 | 11 | 16.2 | 5450 | 4170 | 5045 | 3630 | 4210 |
| iSmart3H750 | 3 | 750 | 15 | 22.45 | 6600 | 4170 | 5045 | 3630 | 4210 |
| iSmart4H1000 | 4 | 1000 | 22 | 30.15 | 7780 | 4170 | 5045 | 3630 | 4210 |
| iSmart5H1250 | 5 | 1250 | 30 | 41.1 | 8240 | 4170 | 5045 | 3630 | 4210 |
| iSmart6H1500 | 6 | 1500 | 30 | 43.4 | 10240 | 4170 | 5045 | 3630 | 4210 |
| iSmart8H2000 | 8 | 2000 | 37 | 51.8 | 11800 | 4170 | 5045 | 3630 | 4210 |

We reserve our own rights to change any technical specifications for machine improvements without a further notice.

CUSTOMIZATION IS AVAILABLE FOR A SPECIAL USES AND REQUIREMENTS: TERRY TOWEL, UNDERWEAR, COLLAR, COUPLING, VAT DYEING ETC.

Consultancy Support

INFRASTRUCTURE AUDIT FOR FULL DYEING PRODUCTION LINE SETUP
PLANNING & OPTIMIZATION

Technical Support

CUSTOMIZATION
INSTALLATION & MAINTENANCE



Textile Industry in South Korea & Role of Dong-A designated by the Government of Korea

During recent years, Korea Energy Management Corporation (Government Agency) realized the threat and started having dialogues with the dyeing houses in Korea to recommend a dyeing machine manufacturer to produce Ecological dyeing machines to achieve specific targets. They eventually selected Dong-A as Dong-A had a strong manufacturing, R&D base and firm synergic relationships with dyeing houses. Dong-A was given specific targets to achieve, which are as under...

Least power consumption, Least water consumption, Least Chemical consumption, Least pollution, Least man power

Dong-A promised to achieve the said targets. Korea Energy Management Corporation assured to participate in the R&D activities through funding the cause. Dong-A realized the dream in producing the latest iSmart series which meets the above targets, with ease. Thus emerged a partnership between Dong-A and Korea Institute of Industrial Technology (Government Agency), to oversee and monitor the targets. Today Korea Energy Management Corporation of South Korea has made substantial investments into the R & D activities of Dong-A, which is an ongoing pursuit, while the counterparts in Europe & Asia have less or no resources to pursue R & D in their own base. As a result Dong-A has many patents to its credit in comparison to its competition and hence has emerged as a Technology Leader in this industry, today.

Please do advise if any further information is required.



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LOCAL REPRESENTATIVE