

PRESENTING.... All in One Dyeing Machine

THE 8G



iSmart DYEING MACHINE

DONG-A DYEING MACHINERY CO.
The secret to a great dyeing

June 2016

THE GREETING♪



Welcome to Dong-A Dyeing Machinery.

Thank you for your attention to our company and products, we are looking forward to hear your comments about our products and services.

Dong-A Machinery will dedicate to improve your productivity, automatization of production using the knowledge and experience of our company resulting producer and customer harmony, and growth of your business.

We never stop at current success, not only provide best quality product but we also continue investing to a research and product improvement to contribute toward textile industry.

President, Yang Hyung Hak



Company name	DONG-A DYEING MACHINERY CO. KOREA
President	Yang, Hyung Hak
Established	1986
Address	676-1, Sunggok-Dong, Danwon-Gu, Ansan-City, Kyungki-Do, Korea
Employment	52



"New techniques developed since 1985"

Dong-A Machinery, provider of Textile dyeing machine established 1985. Since its debut to the industry Dong-A Machinery developed and produced "Pressure liquid dyeing machine", "High pressure liquid dyeing machine", "Bi-pressure liquid dyeing machine (normal and high pressure)", "Tensionless shrink-proof dryer", "Tubular dryer for Lamp-Black solution" and many other textile processing machines. We have sold our products to Korea, United States, South East Asia, South America, China, and Japan.



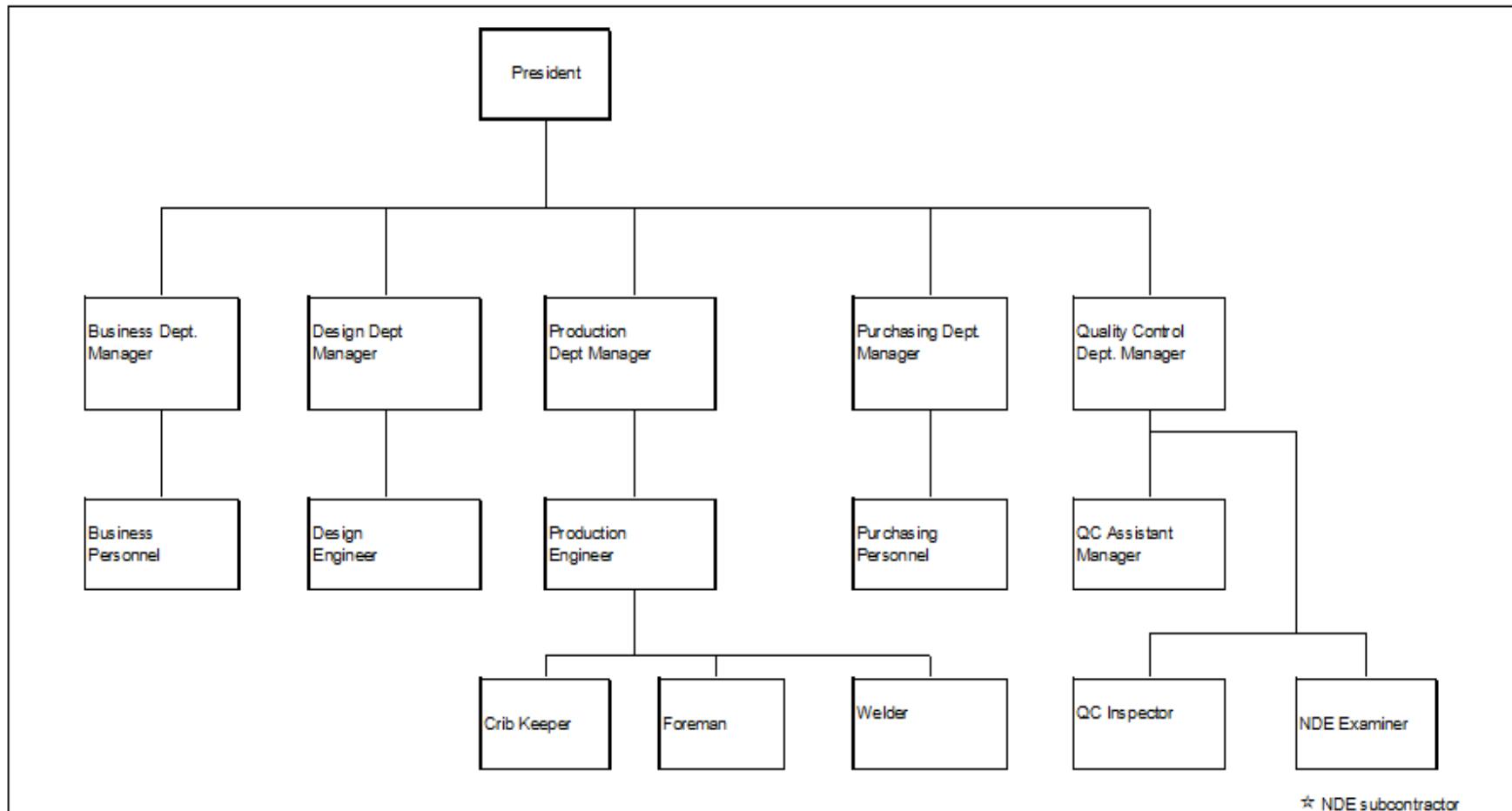
"Good in quality expect better"

Dong-A Machinery's product line "Eco Flow series", "Eco Max Series", New type of liquid dyeing machine invented solely by Dong-A machinery on 1997 sold more than 700 units. Eco Series successfully improved productivity by 30% In 2004, improved version of Eco Max called ECO NEO series was introduced. ECO NEO Series showed better dyeing quality and overall quality of final product. Dong-A machinery is aim to provide best services and products such as

current flag ship machine of Liquid Dyeing machine "Eco NEO" and automatic endless sewing machine, "Tensionless Shrink Dryer", and "Continuous Tubular dryer". Future more Dong-A machinery will continue invest on research for better factory automation, standardization, and quality control.

Location located in Ansan Dyeing Complex Area for a best services to the customers

Company Structure♪



Production Equipments♪

Main Manufacture Equipment(s)			
No.	Name of Equipment	Capacity	Quantity
1	Over Head Crane	2 ton	2
	Over Head Crane	5 ton	2
2	Hydraulic Sharing M/C	9T x 2500	1
	Hydraulic Sharing M/C	12Tx4100	1
3	CNC Hydraulic Press Braker M/C	225 ton	1
4	Hydraulic Press Braker M/C	80 ton	1
5	Rolling M/C	Φ150x3000, 8t	1
6	Scroll M/C	1100x4000	1
	Scroll M/C	800x3000	1
	Scroll M/C	560x1500	4
	Scroll M/C	400x1000	1
7	CNC Scroll M/C	KT-28L	1
	CNC Scroll M/C	KT-21	1
8	Radial M/C	NRD-1000	1
	Radial M/C	NRD-1600	1
9	Milling M/C	1100x280	1
	Milling M/C	2200x530	1
10	Slotted	MBS-150	1
11	Pipe Cutting M/C	Φ330	1
	Pipe Cutting M/C	Φ500	1
12	Auto Tube Expander M/C	Φ25x45mm	1
13	CS Press M/C	30 ton	1
14	TiG Welding M/C	300A	16
	TiG Welding M/C	500A	4
15	CO2 Welding M/C	350A	4
16	Air Plasma	120A	2
17	Gauzing M/C	800A	1
18	Pipe Bending M/C	90°	1
	Pipe Bending M/C	360°	1
19	Air Compressor	30kw	1
20	Machine CTR	MYNX6500-50	1

Main Inspection and Testing Instrument and Equipment			
No.	Name of Instrument and Equipment	Capacity	Quantity
1	Water Press Tester	3Mpa	1
2	Electric Trans Tester	100Kw	1
3	Digital Clamp Tester	AC DC: 600V	3
4	Hardness Tester	4mm	1
5	Anemometer	0.3~100m/sec	1
6	Sound Level Tester	30~130 dB	1
7	Auto Level	45x32 ± 0.7mm	1
8	Dial Indicator	1~50mm	1
9	Bore Gauge	18~300mm	1
10	Micro Meter	0~150mm	1
11	Height Gauge	0~600mm	1
12	Digital Caliper	0~300mm	1
13	Ultrasonic thickness gauge	1.00~200.0mm	1



HISTORY♪

Product Line Up To 2016

2016	Launched 8G iSmart with new functions to Oversea market
2014	Launched 8G iSmart with new functions to domestic market
2011-2013	Launched 7G iDream 1:3.7 to Oversea Market
11-Apr	Launched 7G iDream 1:3.7 to Korean Market
2008~2010	Launched ECO DREAM to Oversea with Upgraded Glauber Salt Tank
2008	June 2008: Launched ECO DREAM Low and High Temp Dyeing Machine to Korean Market soft flow: Liquor Ratio 1:4
2006	ECO NEO Industry Sample Dyeing Machine (50kg, 110.2295lbs) Liquor Ratio 1:5
2005	ECO NEO Extra High Pressure soft flow Dyeing Machine Automatic Tubular Sewing Machine
2004	ECO NEO High Pressure soft flow Dyeing Machine
2002	ECO MAX Extra High Pressure Dyeing Machine
	MULTI FLOW Type High Pressure Dyeing Machine
2001	AIR BALLOONING High Pressure Dyeing Machine ECO MAX High Pressure Dyeing Machine
1999	Continuous Tubular Tumble Dryer
1998	ECO FLOW High Pressure Dyeing Machine ECO FLOW Extra High Pressure Dyeing Machine
1996	4 in 1 Tubular Padder
1993	HITEC FLOW High Pressure Dyeing Machine HITEC Tensionless Shrink Dryer
1990	Slitting Opening Machine
1988	Rapid Liquid High Pressure
1985	Vertical Winch High Pressure Dyeing Machine Air Turning Machine Wet Fabric Turning Machine Wet Calendering Machine



KOREA, CHINA, UZBEKISTAN, ARGENTINA, GUATEMALA, HONDURAS, DOMINICA
CHILE, INDIA, MALAYSIA, UNITED STATES, MEXICO, JAPAN, INDONESIA
MALAYSIA, VIETNAM, PHILIPPINES, PAKISTAN, AFRICA MAURITIUS, BANGLADESH, EGYPT,
SRI LANKA, MOROCCO

SERVICES TO OVERSEA CUSTOMERS

-Consultancy Support

**INFRASTRUCTURE AUDIT FOR FULL DYEING PRODUCTION LINE SETUP
PLANNING & OPTIMIZATION**

-Technical Support

CUSTOMIZATION

INSTALLATION & MAINTENANCE

- TOP FIRST DYEING MACHINERY MANUFACTURER IN KOREA
- OVER 95% MARKET SHARE
- R&D INVESTMENT AND SPONSORSHIP: **Korea Energy Management Corporation**
- R&D activities with **Korea Institute of Industrial Technology and Korean Dyeing Houses**



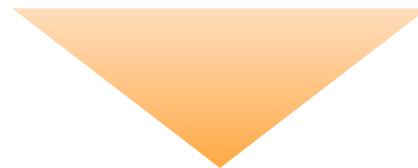
2009~2016	UP to NOW, R&D costs INVESTED BY KOREAN GOVERNMENT
2007	-First place award for Textile Machine category by Korea Government
2004	-A letter of commendation (research and development) at textile day by Commerce and Industry
2002	-Small and Medium company - Family company
2001	-A letter of commendation (export category) at textile day by president of textile industry union -A letter of commendation at Tax day by Prime minister
1999	-Selected as a Promising export company by small and Medium company promotion corporation
1996	-A letter of commendation (Machine development) by Korean Textile News



R&D Requirements

Status of Textile Industry

- Advanced dyeing technology is required for competitiveness
- High efficiency is demanded for marketing, sales and productivity
- Increasing material cost along with increasing costs of oil, water, dyestuff and other energy use▷

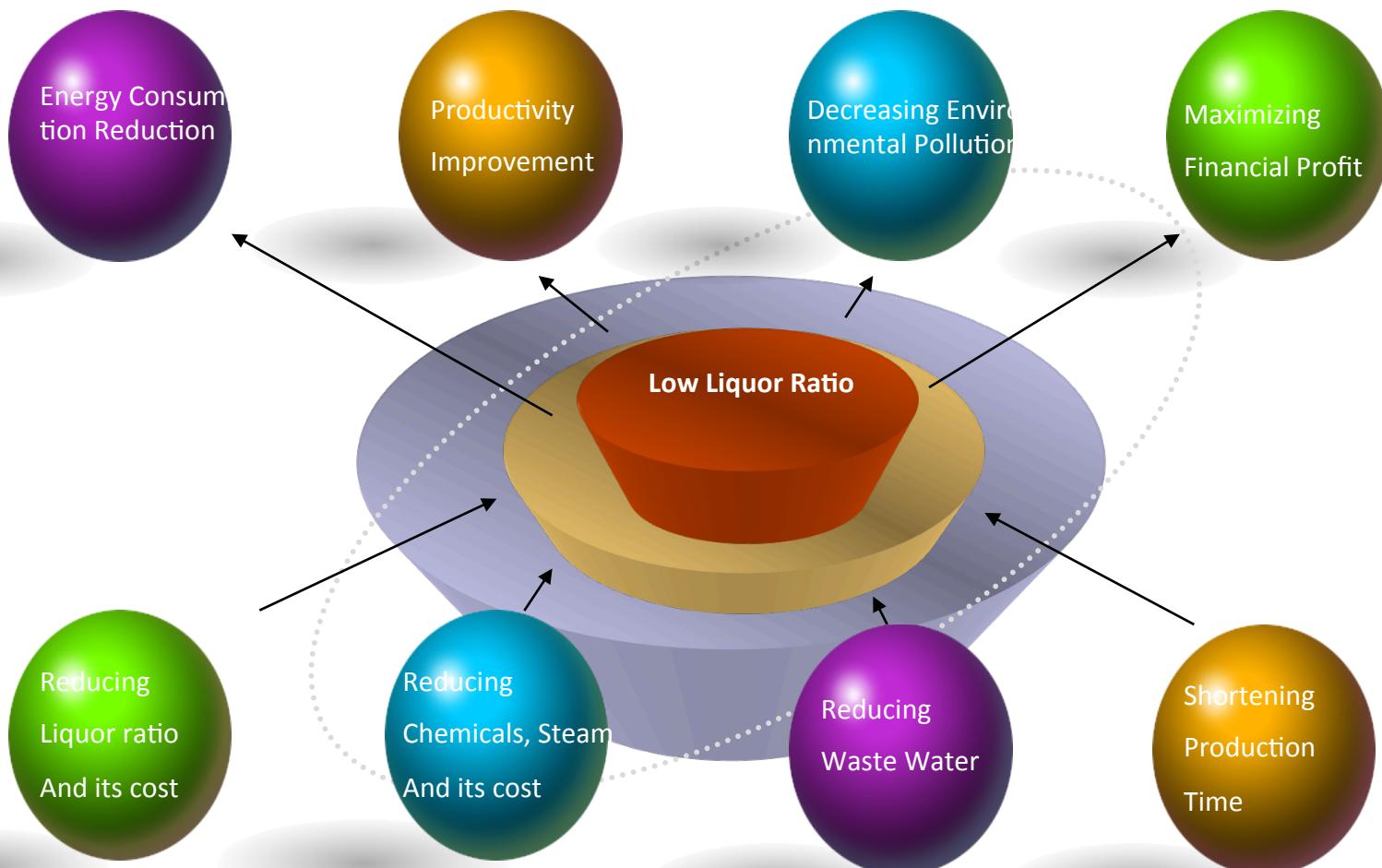


Counter-Plans Of DONG-A

- Increasing research and development to concentrate highly on technology improvement▷
- Developing low-energy consuming machinery for value-added performance
- Saving operation cost from increasing resource costs
- By decreasing operation cost, strengthening competitiveness through improving productivity▷

Achievement

- Developed 1:3.7 low-energy-consuming rounded type dyeing machinery
- Epochal reduction of energy use in dyeing process
- Raising Competitiveness through productivity improvement♪
- Maximizing Customer's Revenue♪



GOVERNMENT REGULATION? COST SAVING?♪

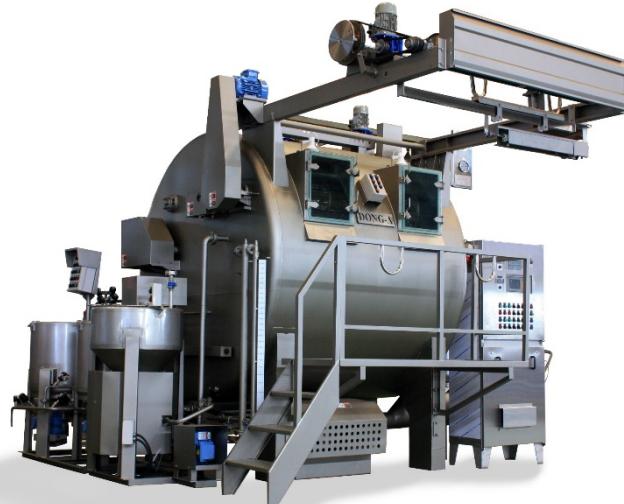


DONG-A soft flow
iSmart
The secret to a great dyeing♪

Dong-A - Eighteen advantages of the iSmart♪

- ♪
1. 100 % loading capacity
 2. Tangle free operation. (Twin Plaiting System)
 3. Crease preventive operation
 4. Two Rope Loading Capability (40 ~60 s & 16 inch possible)
 5. Maximum dye saturation, thus higher color yield.
 6. Level dyeing of all critical shades, thanks to iSmart Technology and the special dyeing injection system.
 7. Faster dyeing cycle and hence enhanced productivity.
 8. Appreciable savings in water and energy consumption. Has the lowest installed power.
 9. Water consumption up to 25 – 40 lts, for light to dark shades.
 10. Considerable reduction in Salt, Chemical, Auxiliary and steam consumption. (Lowest)
 11. Excellent running parameters for all types of fabric, especially Cotton, Viscose, Lycra blends.
 12. Crease preventive operation, short distance of the fabric traverse from the chamber to the lifter reel.
 13. Additional Capacity loading into the same volume of storage chamber.
 14. Automatic Nozzle Adjustment System
 15. Automatic Chamber Adjustment System
 16. Automatic Glauber Salt Powder Injection Tank
 17. TTP: Automatic Twin Takeout Plaiter
 18. Automatic Filter System♪

SPECIFICATION♪



MODEL :	iSmart 2A500
LIQUOR RATIO:	1:3.7~
WORKING TEMPERAT URE :	MAX 98 °C
HEATING-UP RATE :	3~4 °C/MIN(20~98 °C, 6Kg/cm ³ SATURATED STEAM U SED)
COOLING-DOWN RATE :	2~2.5 °C/MIN(98~70 °C,20 °C 2Kg/cm ³ COOLING WATE R USED)
FABRIC SPEED :	0~350M/MIN
FEATURES	Tangle-Free, Even Dyeing



MODEL :	iSmart 2H500
LIQUOR RATIO:	1:3.7~
WORKING TEMPERATU RE :	MAX 143 °C
HEATING-UP RATE :	3~4 °C/MIN(20~130 °C,6Kg/ cm ³ SATURATED STEAM U SED)
COOLING-DOWN RATE :	2~2.5 °C/MIN(130~90 °C,20 °C 2Kg/ cm ³ COOLING WATE R USED)
FABRIC SPEED :	0~350M/MIN
FEATURES	Tangle-Free, Even Dyeing



ACHIEVEMENTS♪

- Liquor ratio: 1:3.7 ~ (100% cotton)
- Consumption H₂O 25~40 liter/kg fabric
- Cycle time 4-6 hrs
- Low electric energy consumption 0.085 – 0.104 kwh/kg fabric
- Tangle Free
- Low Nozzle Pressure – Max. 0.5 Bar (No Hairy / Peeling)
- Two Rope Loading Capability (40 ~60 s)
- High simplicity and versatility
- Small space occupied 0.026~0.061m²/kg fabric
- Low acoustic level
- Easy inside cleaning
- User Friendly Operation♪



DYEING APPLICATION:

Capable of dyeing all fabrics
Cotton, Rayon, Wool, Acrylic, Tencel, Modal, CVC, T/C, T/R, A/T, T/W, A/C.

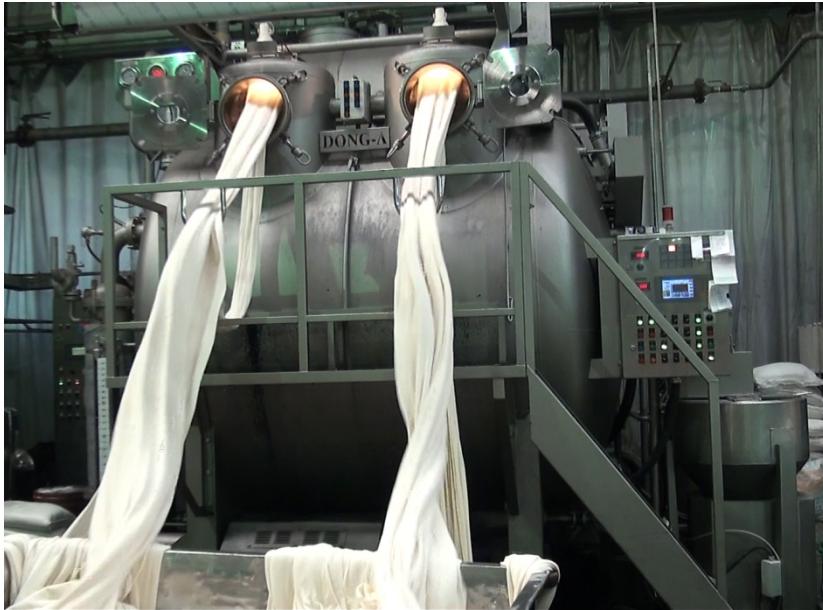
All articles blended with spandex

All articles blended with polyester



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

CAPACITY OF THE DYEING MACHINES



AVAILABLE CAPACITY: 250kg(1 tube), 500kg(2 tubes), 750kg(3 tubes), 1000kg(4 tubes), 1500kg(6 tubes)

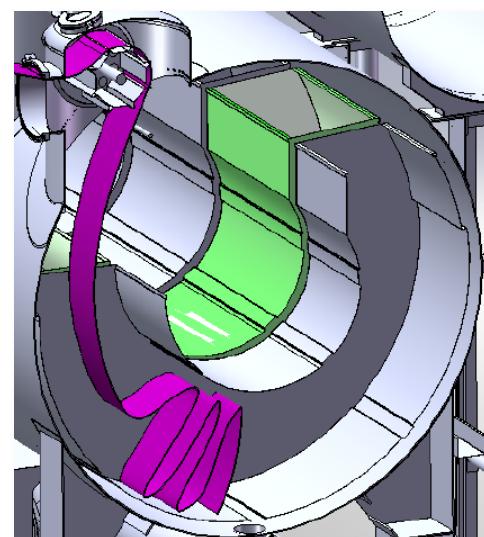
Conventional Dyeing Machine: 80~90% loading capacity.

250kg per chamber loads 200kg~225kg fabrics.

IDREAM:

Specially designed chamber for 100% loading capacity.

250kg per chamber loads 250kg fabrics.



Conventional Dyeing Machine...

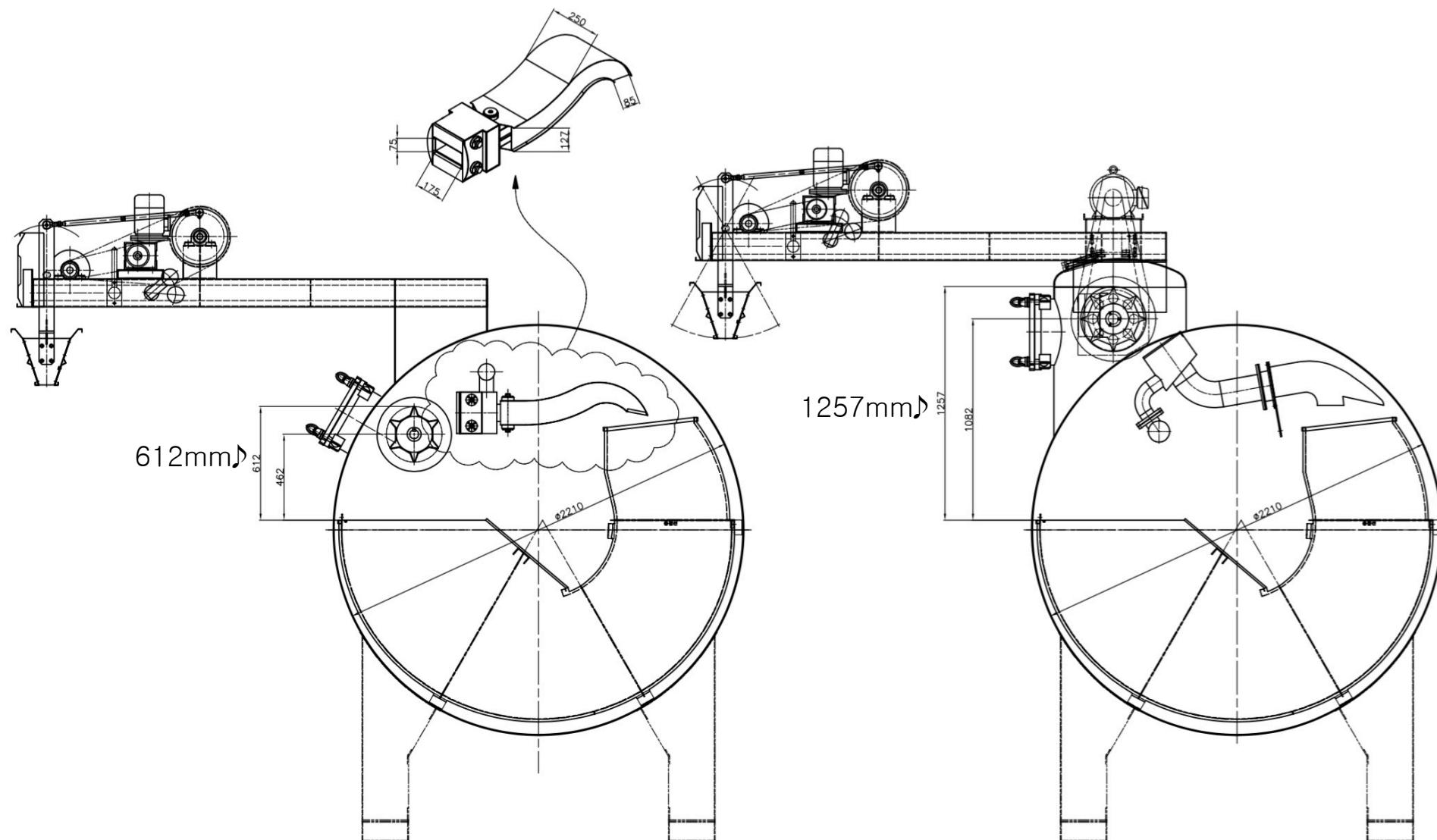
- Messy loading condition inside of the chamber
- Tangling problems
- Crease problems
- Hairy/Fluffy
- Wasting time and manpower



Fabric tangle detector: In the event of any tangling possibility...

- Automatically stops
 - Reversing Reel circulation
 - Back to normal circulation
- ♪





- Shorter distance between Reel and Chamber♪
- Square Nozzle♪
- Nozzle Plaiting direction♪

Machine views (iSmart HTHP 1000kg)♪



Front View♪



Left View♪



Right View♪

BEFORE...

- Salt prepared during an operation
- loss of time
- Different colour levels per batch
- Long time for Dissolving in a chemical tank
- A lot of additional amount of water required for dissolving

Dosing auxiliary agent in powder state **without dissolving in additional water**

Liquor ratio will **never increase**

Three Dosing Methods

- Linear All-In Method: automatically inject all amounts straight 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

- Salt prepared in advance
- Precise and Equal Amount (**Reproducibility & Quality Improvement**)
- No loss of time
- Same coloring level per batch
- Quick Dissolving in side of chamber - No Agglomeration
- **NO** additional amount of water required for dissolving
- Good for TQ dyestuff



GLAUBER SALT DOSING TANK



TEST RESULT♪

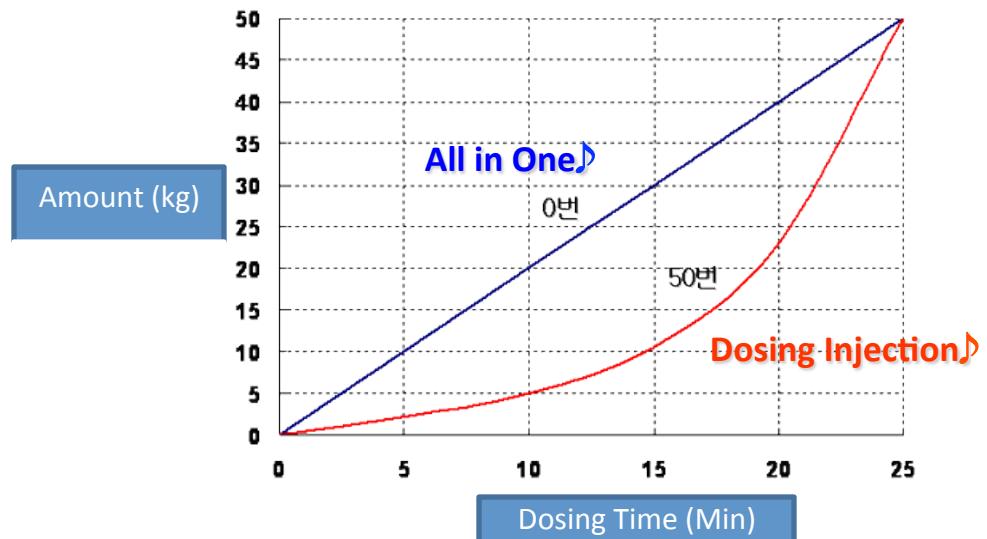
- ① All in One : 4min 18sec (based on 180kg)
- Injection Speed : 43kg/min

- ② Dosing : Dosing all amount in 25min♪

♪

Dosing Time♪	5min♪	10min♪	15min♪	20min♪	25min♪
Amount♪	2kg	5kg	11kg	23kg	50kg
Amount♪	7kg♪	18kg	40kg	83kg	180kg

Amount (kg)



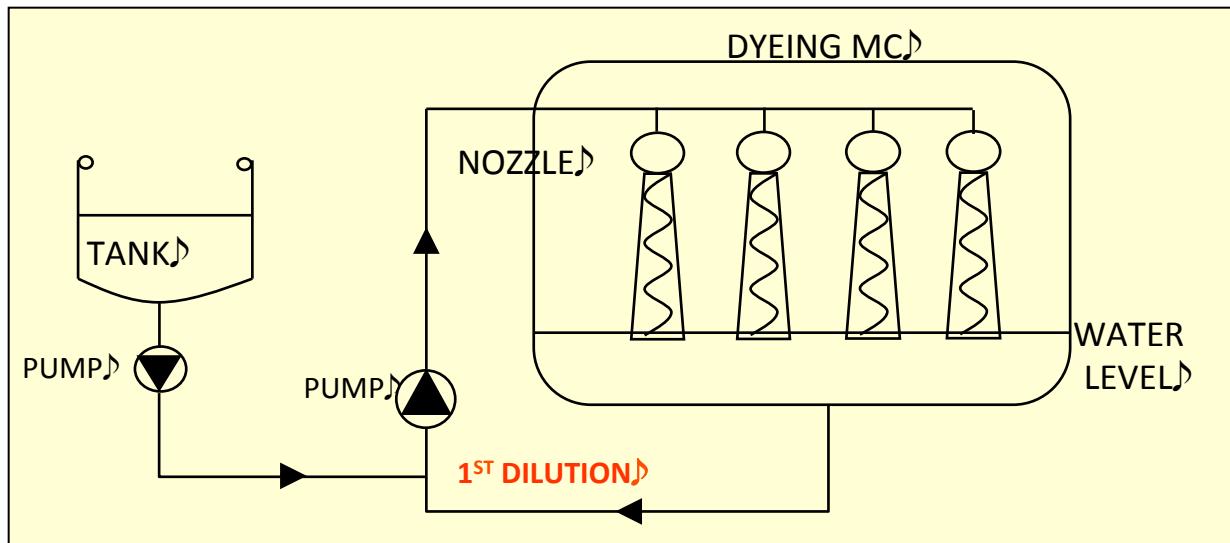
GLAUBER SALT DOSING TANK & SPECIAL DYE INJECTION

CONVENTIONAL

- In case of low liquor ratio dyeing, high-concentrated dyestuff touching a fabric through nozzles ↪
- Longer soda ash and glauber salt injection time ↪



- UNLEVEL DYEING ↪
- UNEVENNESS ↪
- INCREASING DYEING HR ↪

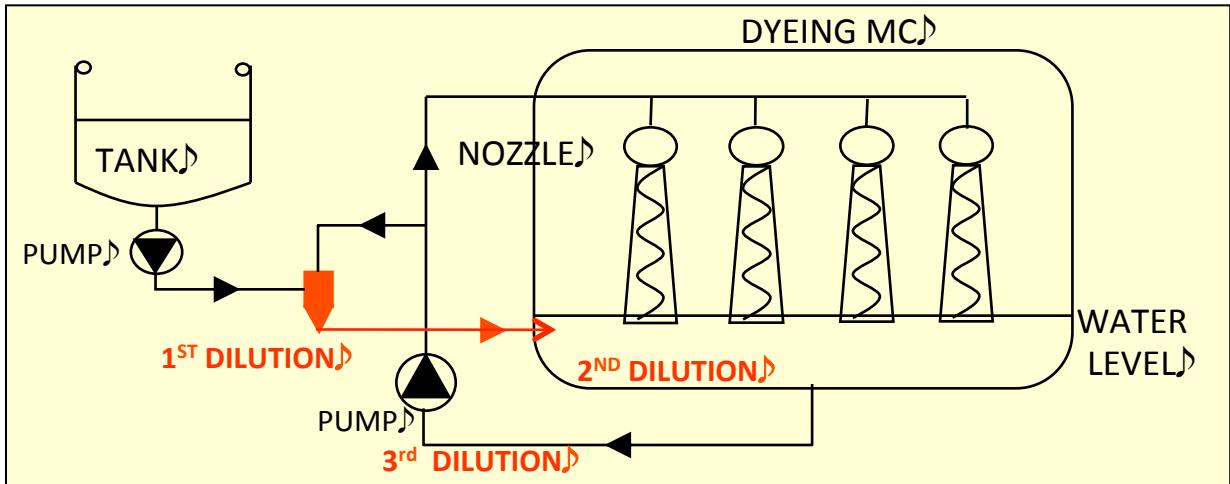


iSmart

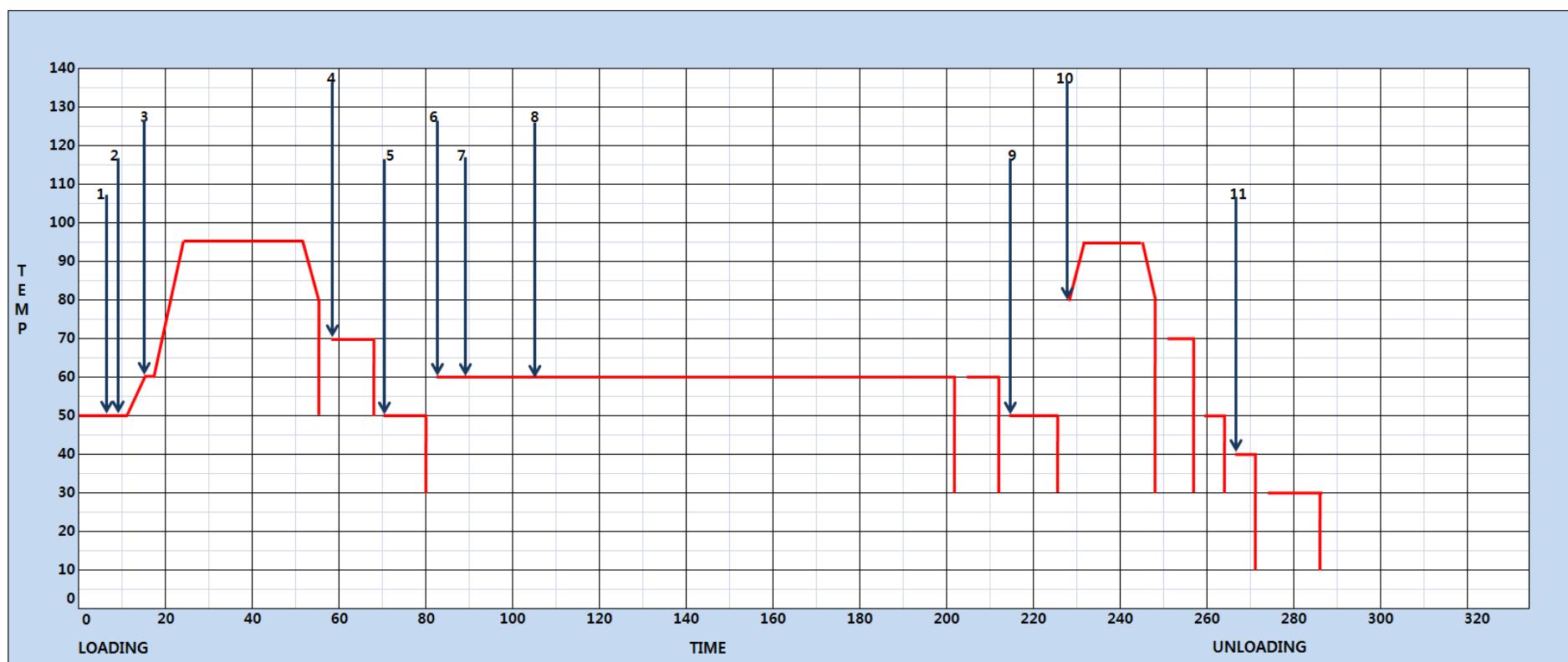
- Improving solubility ↪
- Provide well-diluted dyestuff to Nozzles
- shorter soda ash and glauber salt Injection time ↪



- LEVEL DYEING
- EVENNESS ↪
- REDUCED DYEING DEFECT ↪
- DECREASING DYEING HR ↪



DYEING PROGRAM: FROM ACTUAL PRACTICE



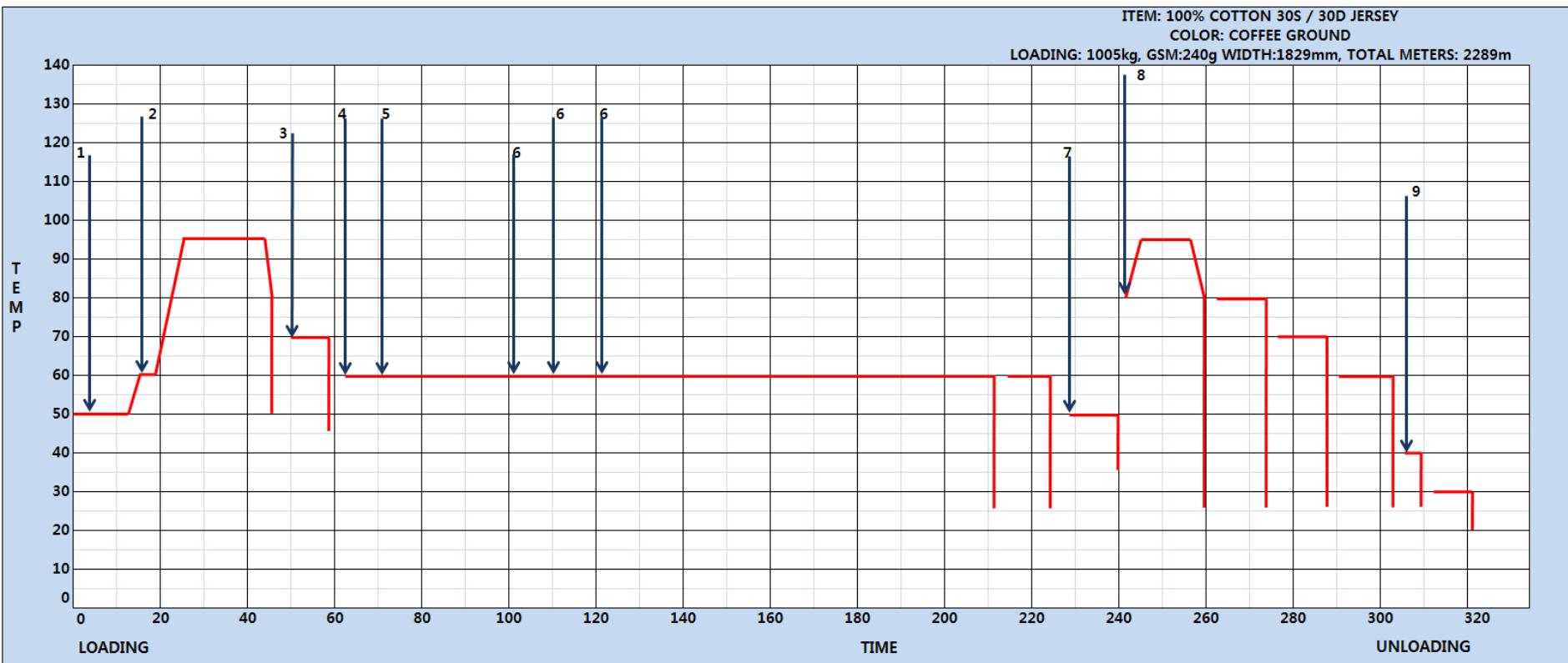
1	WETTING AGENT SA-S	0.5%
1	STABILIZER DS-310	0.5%
2	H2O2 PEROXIDE 35%	3.0%
3	NAOH 50%	2.0%
4	ACID ACETIC 80%	0.9%
5	KILLER ULTRA 50L	0.2%
6	GLAUBER SALT	30 gram/liter
7	YELLOW S3R 150%	0.162%
7	RED BSF	0.61%
7	BLUE BB 133%	0.022%
8	SODA ACID	3 gram/liter
8	SODA CAUSTIC 50%	1.2 gram/liter
9	ACID ACETIC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

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

ENERGY CONSUMPTION	
Lt H2O / Kgf	30.67
Kg steam / Kgf	1.32
Kw/h /Kgt	0.0973

•Tested by Korea Energy Management Corporation, Korea Institute of Industrial Technology and Korean Dyeing Houses.♪

DYEING PROGRAM: FROM ACTUAL PRACTICE 2



1	WETTING AGENT SA-S	1.0%
1	LUBRICANT AGENT T-500	2%
2	NAOH 50%	3%
3	ACID ACETIC 80%	1.3%
4	GLAUBER SALT	80 g/l
5	YELLOW 3R	2.3%
5	RED SPD	1.16%
5	NAVY BLUE K-BF	1.58%
6	SODA ACID	3g/l
6	SODA CAUSTIC 50%	2.4g/l
7	ACID ACETIC 80%	1.8%
8	SOAPING RS	0.25%
9	ACID ACETIC 80%	0.20%

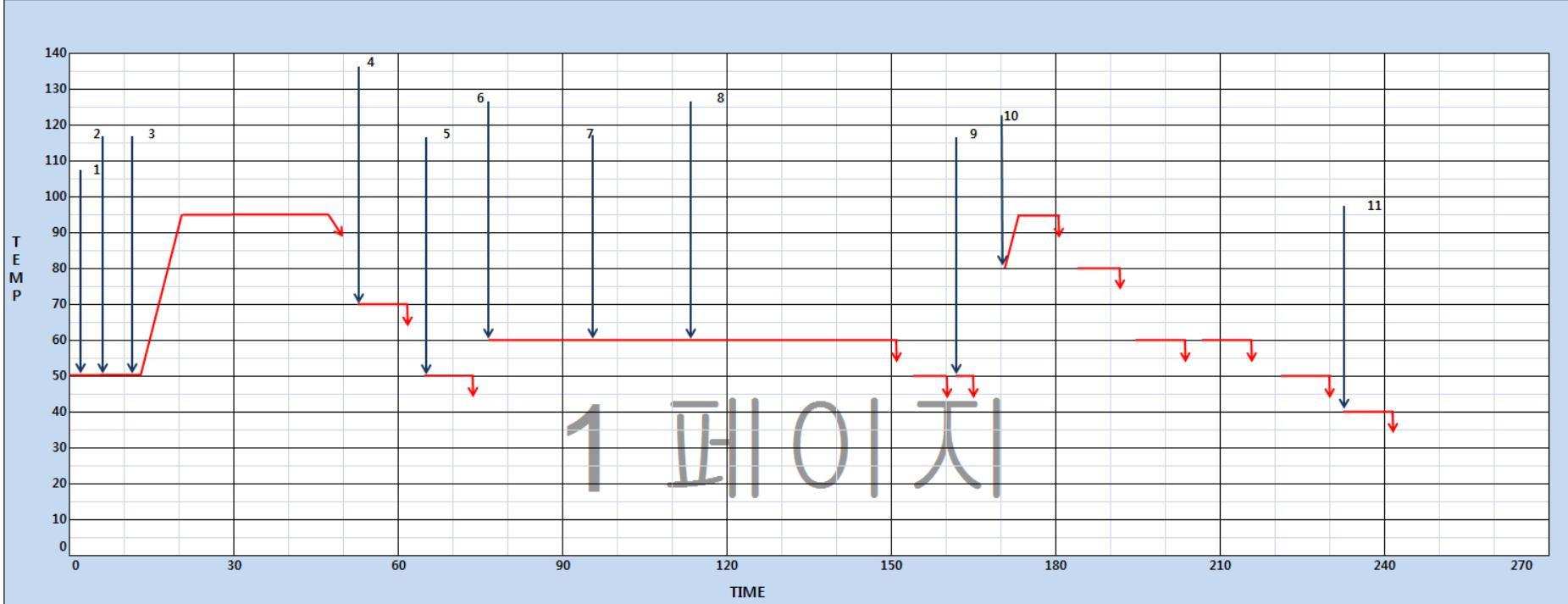
ITEM: 100% COTTON 30S / 30D JERSEY
MACHINE CAPACITY: 1000kg (4 Chambers)
COLOR: COFFEE GROUND
LOADING: 1005kg, GSM:240g
WIDTH:1829mm, TOTAL METERS: 2289m

ENERGY CONSUMPTION	
Lt H2O / Kgf	31.3
Kg steam / Kgf	1.51
Kw/h /Kgt	0.1050

•Tested by Korea Energy Management Corporation, Korea Institute of Industrial Technology and Korean Dyeing Houses.♪

DYEING PROGRAM: FROM ACTUAL PRACTICE 3

DYEING PROGRAM: FROM ACTUAL PRACTICE FOR TERRY TOWEL



1	WETTING AGENT	0.5%
1	STABILIZER	0.5%
2	CAUSTIC 50%	2.0%
3	H2O2 35%	5.0%
4	CH ₃ COOH 80%	0.9%
5	ULTRA 50L	0.2%
6	Sunfix Yellow S3R 150%	0.2794%
6	Sunfix Red S3R 150%	0.6361%
6	Sunfron Blue SNR	0.0098%
7	Glauber Salt	35 gram/liter
8	Soda	3 gram/liter
8	NAOH	1.4 gram/liter
9	CH ₃ COOH 80%	1.8%
10	SOAPING RS	0.2%
11	Softener 990	3%

ITEM: 100% COTTON TERRY TOWEL
 COLOR: APPLE BLOSSOM
 MACHINE CAPACITY: 500kg, CHAMBER: 2
 LOADING: 500kg, GSM:560
 WIDTH: 2400mm, TOTAL METERS: 370m

ENERGY CONSUMPTION	
Lt H ₂ O / Kgf	31.4
Kg steam / Kgf	1.32
Kw/h / Kgt	0.061

•Tested by Korea Energy Management Corporation, Korea Institute of Industrial Technology and Korean Dyeing Houses.♪

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

♪

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).♪

-Low Nozzle Pressure, Max. 0.5 Bar, minimizes surface abrasion and pilling.♪

-Crease preventive operation, short distance of the fabric traverse from the chamber to the lifter reel.♪

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.♪

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♪

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

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Profitability & Faster Return on Investment:

- Low liquor ratio 1:3.7 ~♪
- 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). ♪
- Man power saving, is given.♪
- Can offer 10 kgs to 2000 kgs with a standard chamber size of 250 kgs and also can offer customized machines. ♪

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♪
- User Friendly Operation ♪
- High versatility♪

Patents & Technology Leader:

♪



Consultancy Support

•**INFRASTRUCTURE AUDIT FOR FULL DYEING PRODUCTION LINE SETUP**

Dyeing and Finishing Infrastructure consist of expensive dyeing machinery and supporting infrastructure which need to be well engineered and implemented. Accurate optimization verification prior to factory acceptance and periodic monitoring are critical to ensure that entire infrastructure functions optimally.

Our infrastructure audit consist of detailed data collection and analysis that will assist clients in accurate valuations of machinery assets, to be ready for future system upgrades for the highest quality of service.

•**PLANNING & OPTIMIZATION**

Our engineers are experienced in all aspects of capacity planning, optimization and site setup for entire dyeing and finishing infrastructure. Planning services can be provided on both a turnkey basis inclusive of project management or on an individual consultancy basis according to client requirements

Technical Support

•**CUSTOMIZATION**

Our engineers who have more than 25 years experience in the field will be able to provide clients with expert project services which focus on customization with specific goals to ensure that all machinery specifications and requirements are met.

•**INSTALLATION & MAINTENANCE**

The installation of machinery especially in large scale require a wide range of expertise including in depth knowledge of machinery specifications, optimized operation, maintenance and safe work procedures.

Our engineers are experienced in the installation of dyeing and textile machineries and provide services and consultancy inclusive in installation, commissioning and maintenance through direct demonstration.



Thanks for your attention!

Mission Statement

"Dong-A dedicates itself to providing dyeing and finishing machines with a focus on reducing the costs of its clients and increasing their revenue channels through research, innovation and commitment"



Contact Us

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