



GERMAN TECHNOLOGY  
designed & developed in Germany



 *Krantz* RAPIDDYE®

RAPIDDYE® & RAPIDDYE-TT®  
HT Fabric Dyeing Machine



## COMPANY PROFILE

KTM KRANTZ company history review 3

## MACHINE DETAILS

HT fabric dyeing machine **RAPIDDYE®** 5

machine body 8

nozzle system **VARIOSOFT®** 9

treatment chamber 11

circulation pump 12

heat exchanger 13

bath distribution system **BDS OCTOPUS®** 14

preparation and stock tank 15

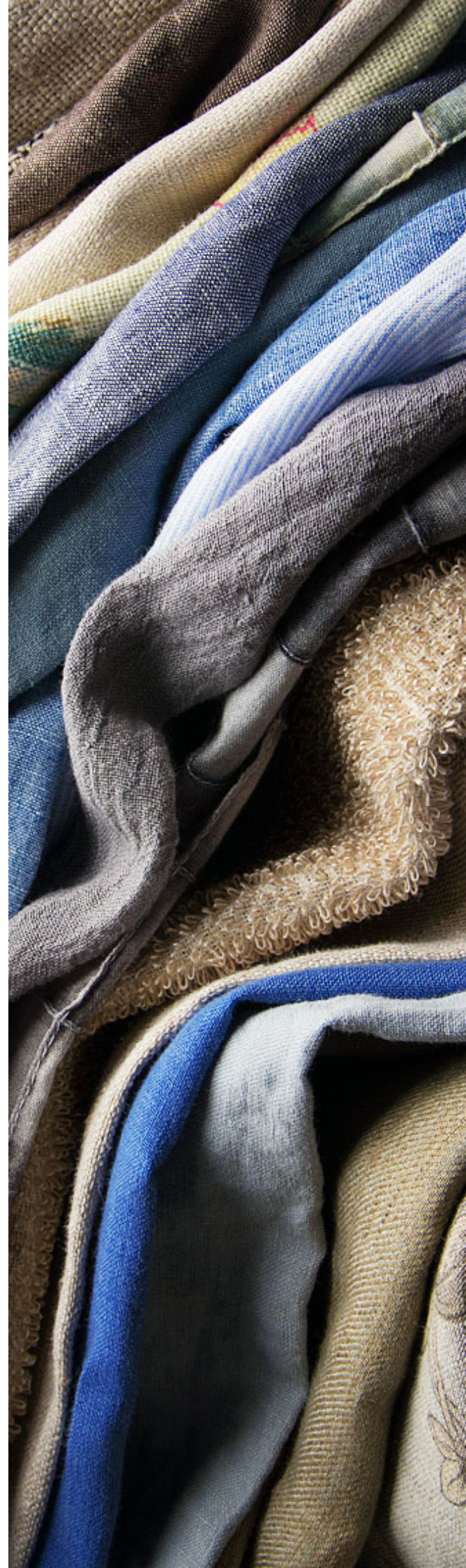
quick dosing system **RAPIDDOS®** 16

smart bath control **SMABACON®** 16

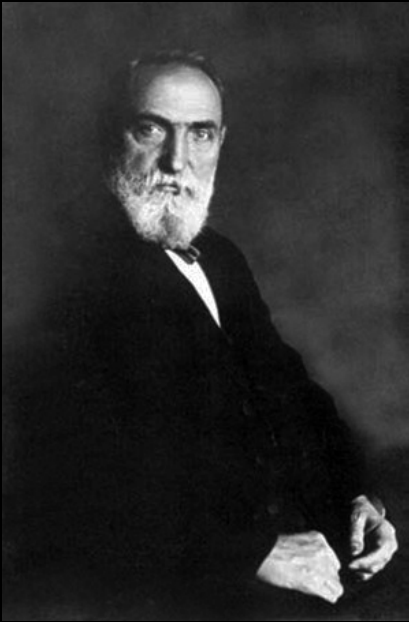
fast fabric rinsing **TURBORINSE®** 16

electrical control panel 17

HT fabric dyeing machine **RAPIDDYE-TT®** 19



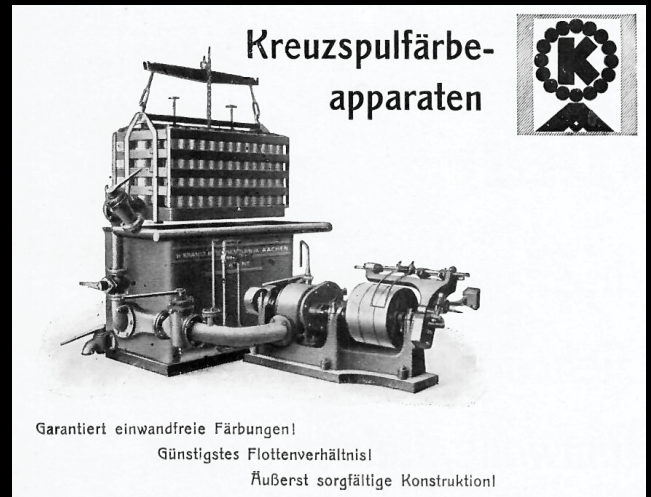




Hermann Krantz- founder of the company

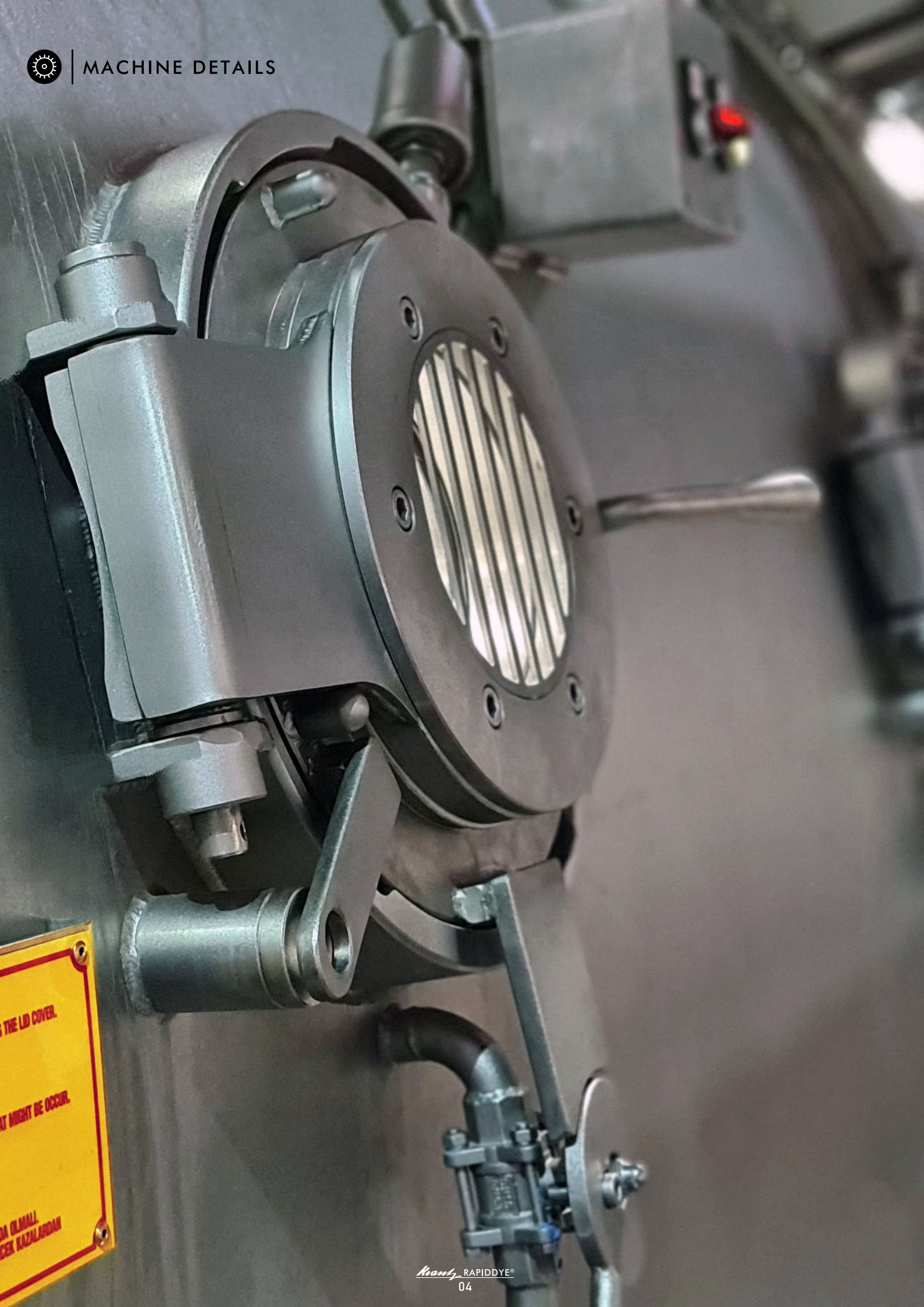
KRANTZ ... this name stands for over 135 years of industrial history.

In the westernmost city in Germany, Aachen, close to the borders with the Netherlands and Belgium, engineer Hermann Krantz founded the company in 1882. After initially focusing on ventilation and heating systems, textile machines quickly became another strong pillar of the company. As early as the 1920s, the company was not only supplying German textile companies but was already active worldwide. Since then, the name Krantz has been synonymous with high-performance and high-quality machines in the field of finishing and discontinuous dyeing.



dyeing machine for crosswound bobbins, 1931

In 1992 the Krantz family decided to sell the company to the Deutsche Babcock Group. As part of the subsequent realignment of the company, the production of the dyeing machines was outsourced to an independent subsidiary in Turkey. Here, of course, great importance was attached to ensuring that the old quality standards were fully guaranteed. Today the company is part of the Pro-Teknik group and is continuing the more than 100-year success story of the original German company.



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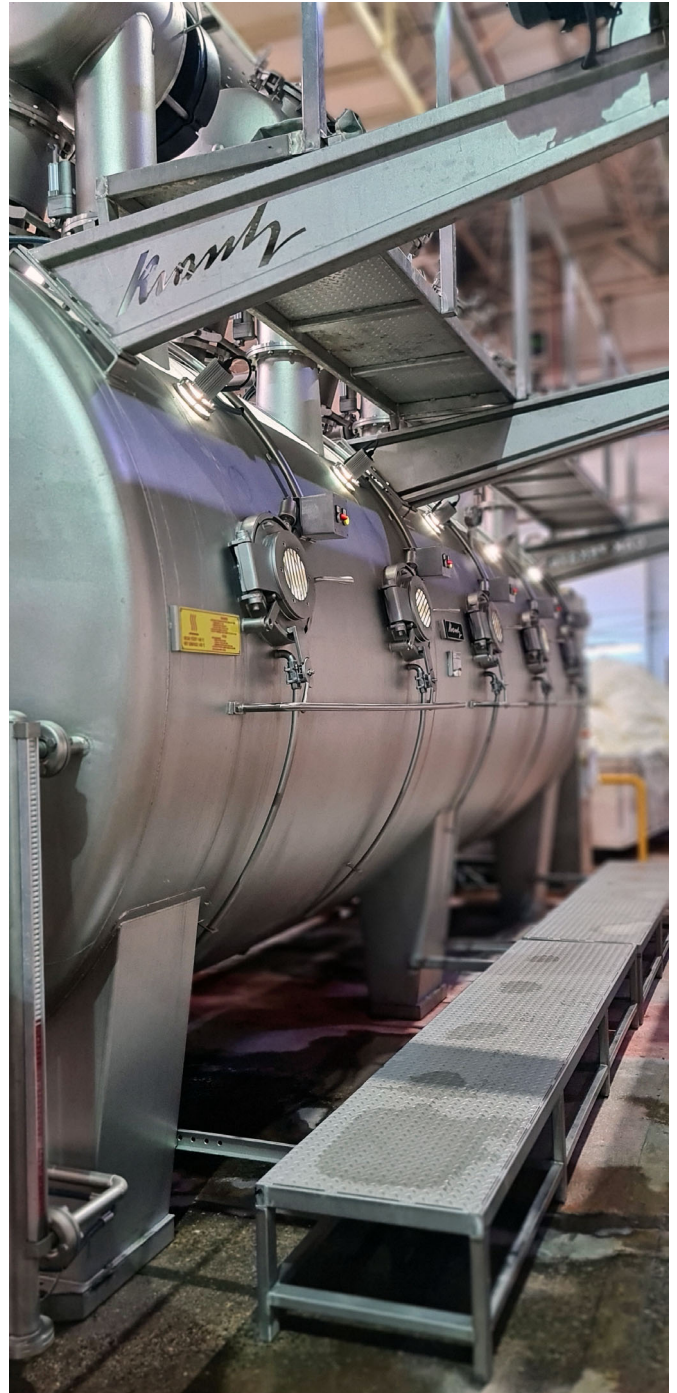
HT fabric dyeing machine **RAPIDDYE®**

KRANTZ goes green ... Strong words for a strong and successful performance!

In these times, the world of textile dyeing and finishing faces enormous ecological challenges. Tremendous increases in the cost of electricity, water and waste water treatment as well as justified pressure to conserve resources are forcing textile dyers to rethink efficiency and production steps.

The completely newly developed and redesigned HT fabric dyeing machine **RAPIDDYE®** is the excellent result of more than four decades of experience in short liquor ratio dyeing.

With its perfect operating conditions, reduced process times and optimal use of inputs, the new **RAPIDDYE®** offers all the benefits of an investment for any dye house at once, while ensuring minimal environmental impact and long-term sustainability.



With its increased productivity and improved reliability, the new **RAPIDDYE®** offers completely new perspectives and possibilities for all advanced textile dyeing and finishing companies worldwide.

KRANTZ goes green ... join us and let yourself be inspired.





## HT fabric dyeing machine RAPIDDYE®



### Krantz RAPIDDYE® -100-2

#### working conditions

- ✔ max. working pressure 4 bar overpressure
- ✔ water pressure 4 bar overpressure
- ✔ compressed air 6-10 bar overpressure
- ✔ max. operating temp. 140 °C
- ✔ heating from 20 °C to 135 °C in 25 min at 6 bar
- ✔ cooling from 130 °C to 85 °C in 20 min
- ✔ fabric weight 50-600 g/m<sup>2</sup> (rope & open-width)
- ✔ machine speed 20 m/min- 500 m/min
- ✔ fabric loading capacity 10 kg- 2.000 kg
- ✔ liquor ratio starting from 1:4

### Krantz RAPIDDYE®





## HT fabric dyeing machine **RAPIDDYE®**

### basics

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- ✓ nominal chamber capacities 100 kg, 150 kg, 200 kg, 250 kg & 300 kg
- ✓ nominal chamber capacities of 10 kg, 25 kg & 50 kg for sample dyeing machines
- ✓ stainless steel quality AISI 316L
- ✓ internal winch with frequency-controlled individual drive and maintenance platform
- ✓ teflon coated fabric chamber to prevent knotting and to minimize friction
- ✓ frequency-controlled pump motor
- ✓ security lock by means of pneumatic piston
- ✓ observing windows & lighting
- ✓ adjustable nozzle system **VARIOSOFT®**
- ✓ rope circulation control
- ✓ internal main body washing system
- ✓ automatic seam detector
- ✓ electro-pneumatic-operated valves
- ✓ modern touch-screen controller
- ✓ electronic measurement of liquor level to control the water level inside the dye vessel
- ✓ electronic flow meter
- ✓ manual filter
- ✓ easy-fabric-loading & unloading
- ✓ frequency-controlled unloading winch
- ✓ special bath distribution system **BDS OCTOPUS®**

### options

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- + quick dosing system **RAPIDDOS®** – automatic dosing of dyes and chemicals
- + automatic self-cleaning filter **AUTOCLEAN-SCF®**
- + automatic plaiter
- + second heat exchanger and stock tank
- + high temperature drain
- + quick drain
- + pH measurement system
- + smart bath control **SMABACON®**
- + fast fabric rinsing **TURBORINSE®**
- + direct drive with torque limiter for inner reel
- + rapid heating system **TURBOHEAT®**
- + additional horizontal circulation system



## machine body

All machine parts that come into direct contact with the liquor bath are made of acid-resistant AISI 316L stainless steel. Depending on the capacity of the machine, the diameter of the main body is either 1800 mm or 2360 mm.

For machines with up to five towers, the wall thickness of the main body is 5 mm and the wall thickness of the side walls is 6 mm; for machines with six or more towers, the wall thickness of the main body is 6 mm and the wall thickness of the side walls is 7 mm.

For quick loading and unloading, each treatment chamber is equipped with a security lock with pneumatic piston, an observing window with stainless steel metal grid (high-temperature-resistant glass) and external lighting.

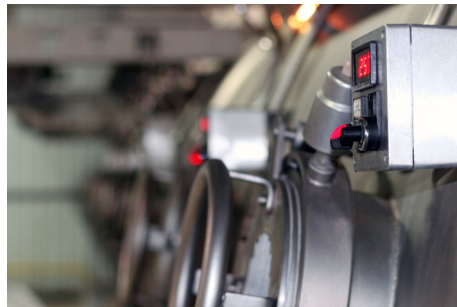
In addition the main body is equipped with an internal frequency-controlled winch, the tower including an adjustable nozzle, a seam detector and a rope circulation control.



fabric guiding ring



lightning



pneumatic piston for security lock

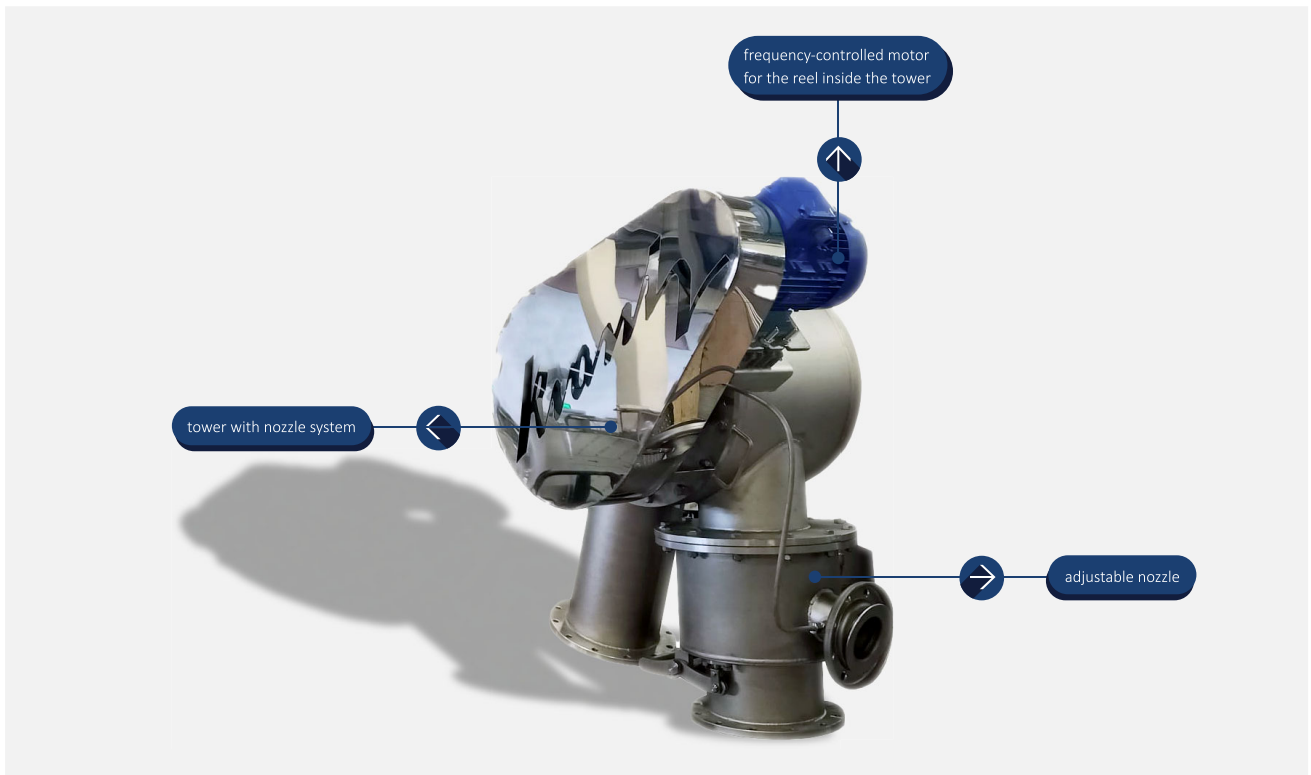


RAPIDDYE®-300





nozzle system

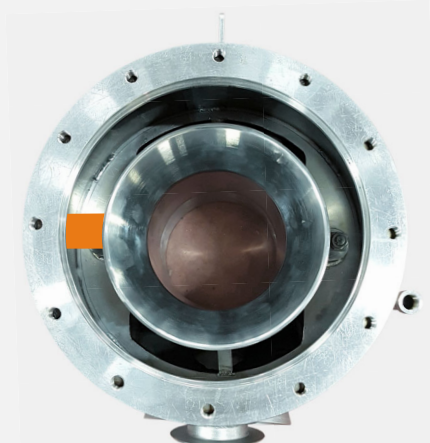


*Kranz* VARIOSOFT®

VARIOSOFT® nozzle minimum opened  
(■ 3mm/3-12mm openable area)



VARIOSOFT® nozzle maximum opened  
(■ 12mm/3-12mm openable area)



*Kranz* VARIOSOFT®



### nozzle system

#### benefits

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- ✓ easy and trouble-free operation
- ✓ nozzle gap fully automatically adjustable via control panel
- ✓ maintenance flap available
- ✓ pneumatic pistons by FESTO/Germany
- ✓ total control of pressure and bath delivery for all treatment chambers
- ✓ excellent penetration into the fibre core
- ✓ guarantees the possibility of non-abrasive dyeing without crease marks
- ✓ reel motor frequency-controlled
- ✓ new reel design allows simple and quick replacement of the rubber stripes without having to disassemble the whole reel

*Kranz* RAPIDDYE®



The nozzle is adjustable between 3 mm to 12 mm. The nozzle is offered with a standard diameter of 168 mm, other diameters are available on request. The preferred pressure can be set between 0- 1,5 bar.

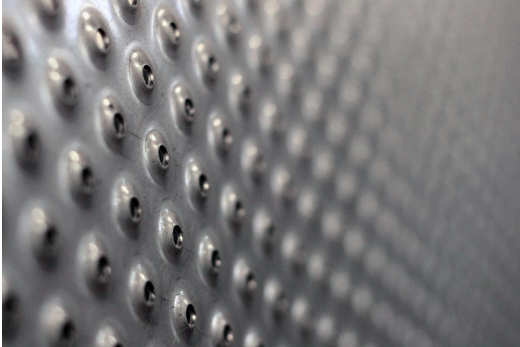
The movement of the fabric is supported by internal reel and water flow in the nozzle. These features guarantee perfect processing of different types of fabrics.





treatment chamber

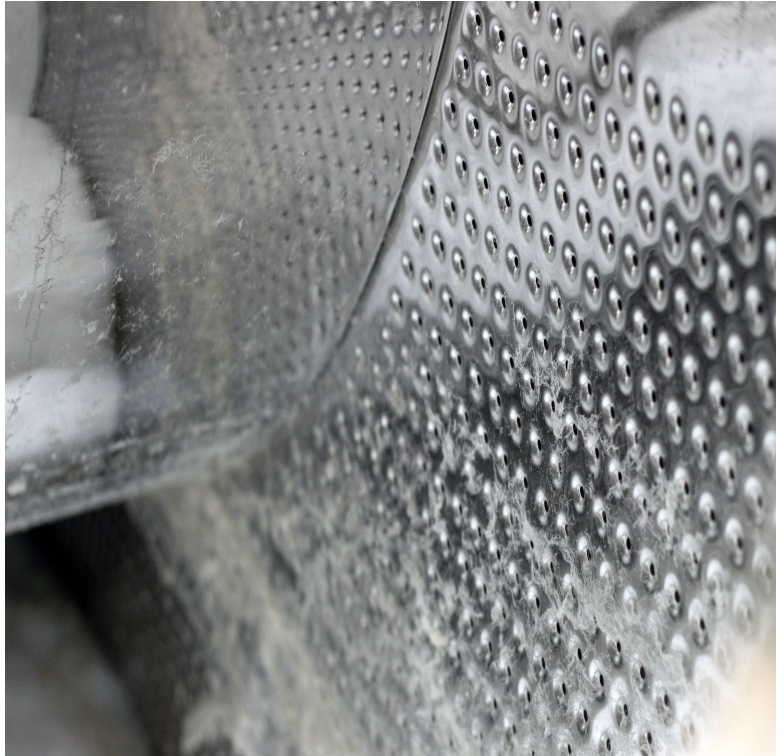
Each treatment chamber is equipped with a J-box. The side walls of the J-box are specially perforated to achieve an absolutely effective and homogeneous jet flow of the liquor to each adjacent J-box.



perforated side wall of J-box

The bottom side of the J-box is Teflon-coated to ensure minimal friction and a perfect flow of the fabric without knotting.

The special design of the treatment chamber in combination with the integrated plaiter guarantees an excellent treatment of all types of fabrics, either in rope or in open-width form.



perforated side wall in the treatment chamber



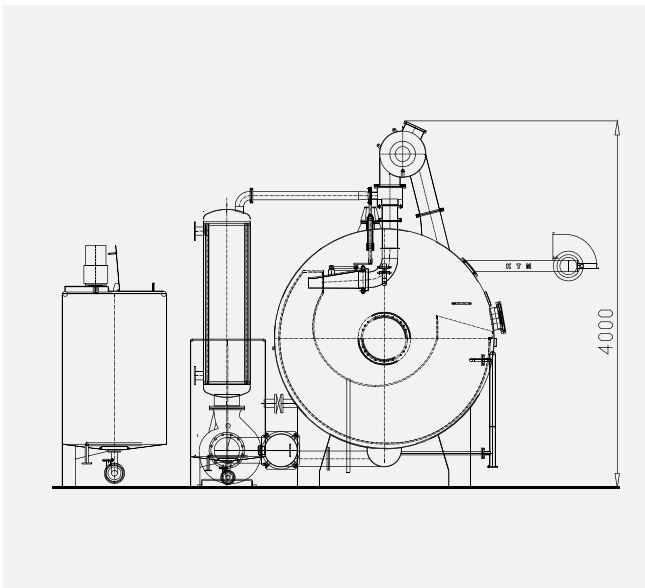
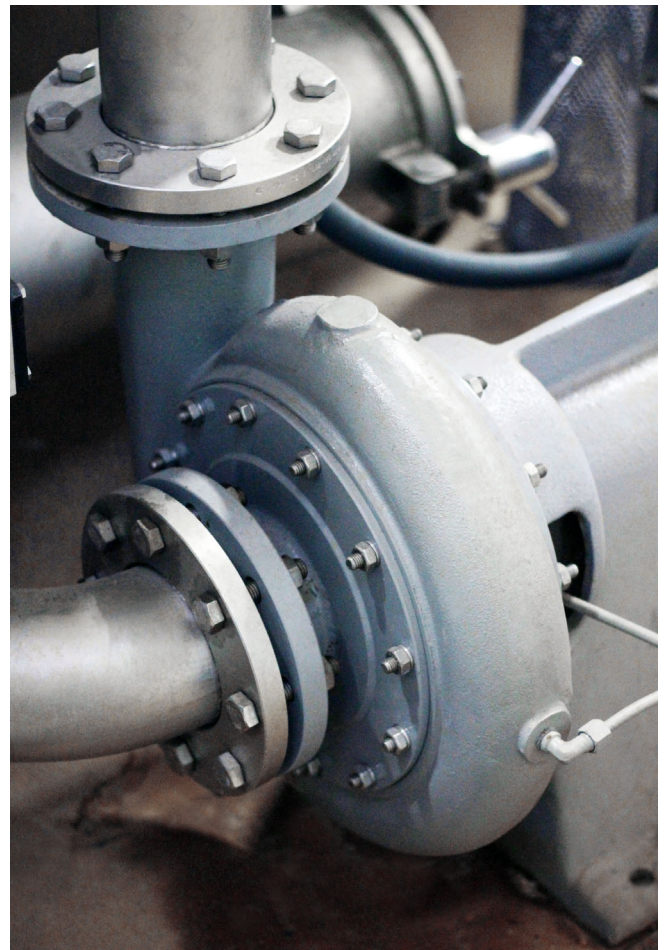
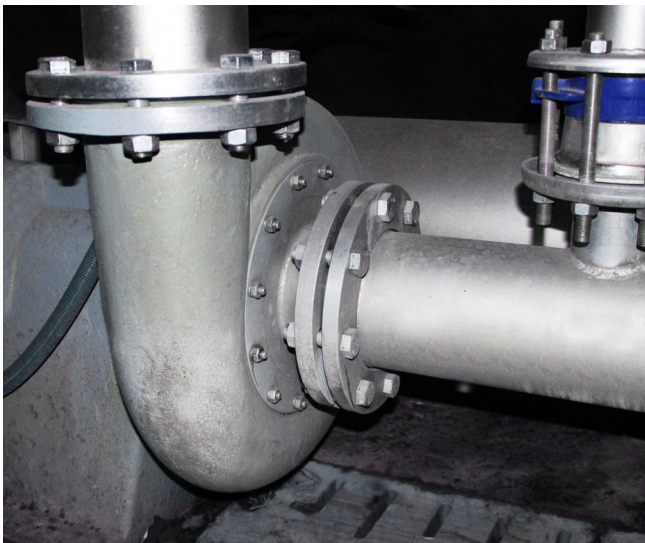
inside view of the main body



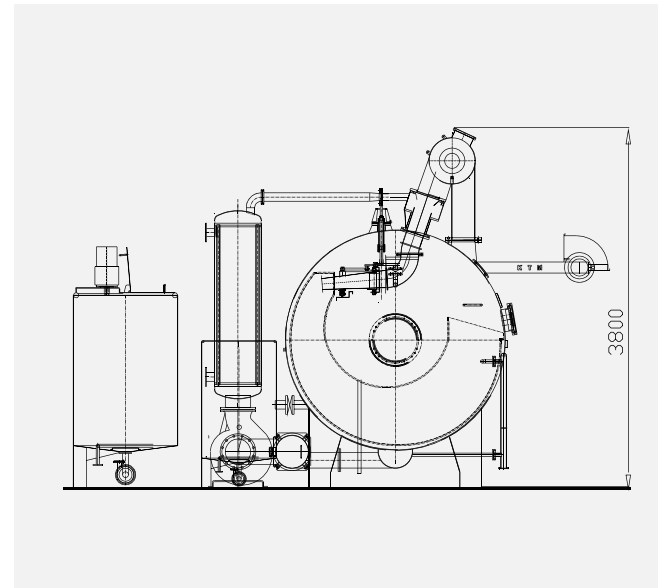
## circulation pump

All the circulation pumps, as one of the main parts of the fabric dyeing machine with superior function for the dyeing effect, have always been produced in the own factory of KRANTZ, and so it is still today.

The performance of the circulation pump used depends on the type of fabric being treated and the weight of the fabric. This procedure is defined in the processing recipe and is set automatically by means of a frequency-controlled A/C motor.



**Krantz RAPIDDYE®** tower execution for woven fabrics



**Krantz RAPIDDYE®** tower execution for knitted fabrics





## MACHINE DETAILS

### heat exchanger

One of the most important parts of the dyeing machine is the main heat exchanger.

Both the outer shell and the inner tubes of the heat exchanger are made of AISI 316L stainless steel. While extreme temperature differences at welds lead to cracks, all inner tubes are not welded but pressed into the end walls. As a result, a crack or damage of the inner tubes is almost impossible.

The heat exchanger is additionally equipped with a condensate return on/off valve, a proportional heating and cooling valve and a cooling water return on/off valve.



unloading machine



main heat exchanger along the machine

### fast heating system

With the new **TURBOHEAT®** system, the process time can be significantly reduced. Additional heating coils inside the machine improve the heating-up process.





### bath distribution system

The transverse movement of the liquor treatment bath by the new bath distribution system **BDS OCTOPUS®** from KRANTZ significantly improves and accelerates the achievement of an even and homogeneous treatment bath.

This innovative bath flow ensures that the liquor bath is fully agitated approximately every 30" so that the agitation is four times greater than the bath volume per lap, based on a hypothetical average rope turn of two minutes.

Based on these facts, the new bath distribution system ensures an absolutely even and homogeneous distribution of the dye liquor in comparison to other conventional systems on the market.

Conventional systems have a smaller bath supply in the different treatment chambers and also a smaller bath suction area.

The new **BDS OCTOPUS®** bath distribution system ensures perfect bath distribution in every nozzle of the machine, suction is guaranteed over the entire length of the machine and better mixing of dye liquor is achieved.



**BDS OCTOPUS®**



**BDS OCTOPUS®** mounted on a **RAPIDDYE®-100-4**



### preparation tank

The preparation tanks are used for the preparation of the treatment liquor bath including dyestuffs and chemicals or salt.

The tank is indirect steam heated by means of heating coils located at the ground of the tank (heating gradient is 5° C/min)

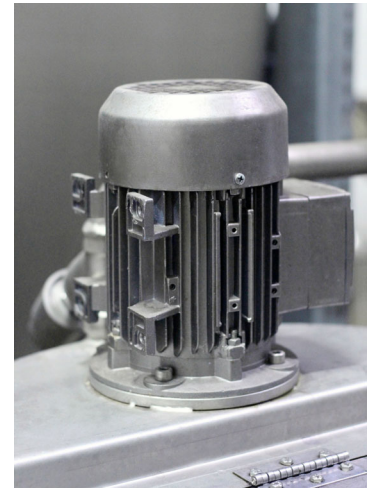
The tank is also fitted with a mixer and a level control system and cleaning automatically takes place after the dye process is finished.



preparation tanks



liquor dye bath



motor for mixer

### stock tank

As an option, our customers have the choice to take a separate stock tank, which reduces the process time by approx. 1-1.5 h.

The pump for the preparation tank is a reserve centrifugal-type pump.



## MACHINE DETAILS

### quick dosing system

The newly revised quick dosing system **RAPIDDOS®** shortens the dye process time enormously by diluting the alkali with the process bath.

The dosing system is programmable for automatic operation with the option to change any parameter as required.



control valve for water

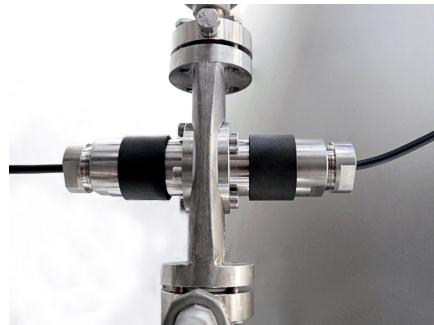


control valve for steam

### smart bath control

The smart bath control **SMABACON®** is an intelligent sensor to analyze the bath in the dyeing machine.

The system allows working with extreme low bath levels and water consumption.



smart bath control sensor

### fast fabric rinsing

The fast fabric rinsing **TURBORINSE®** is a very helpful system that allows the fabric to be rinsed with clear hot water.

The main advantage is the significantly higher washing effect compared to rinsing with only cleaned bath water.



fabric rinsing in process





### electrical control panel

The entire switch board and electric cabinet are made of stainless steel.

All relevant motors, such as motors for the reel and for the circulation pump as well as frequency-controlled A/C motors and the associated inverters, all come from high-end manufacturers in Europe.

KRANTZ only uses high-end controllers from top manufacturers such as the Secom series from Setex or the Sedomat series from Sedo-Treepoint.

With these controllers, even very demanding automation tasks can be implemented without any problems. The integrating of an automatic dye kitchen becomes a standard task. Complex machines can be operated easily and directly via the integrated touch-screen.



additional control buttons



controller SECOM series



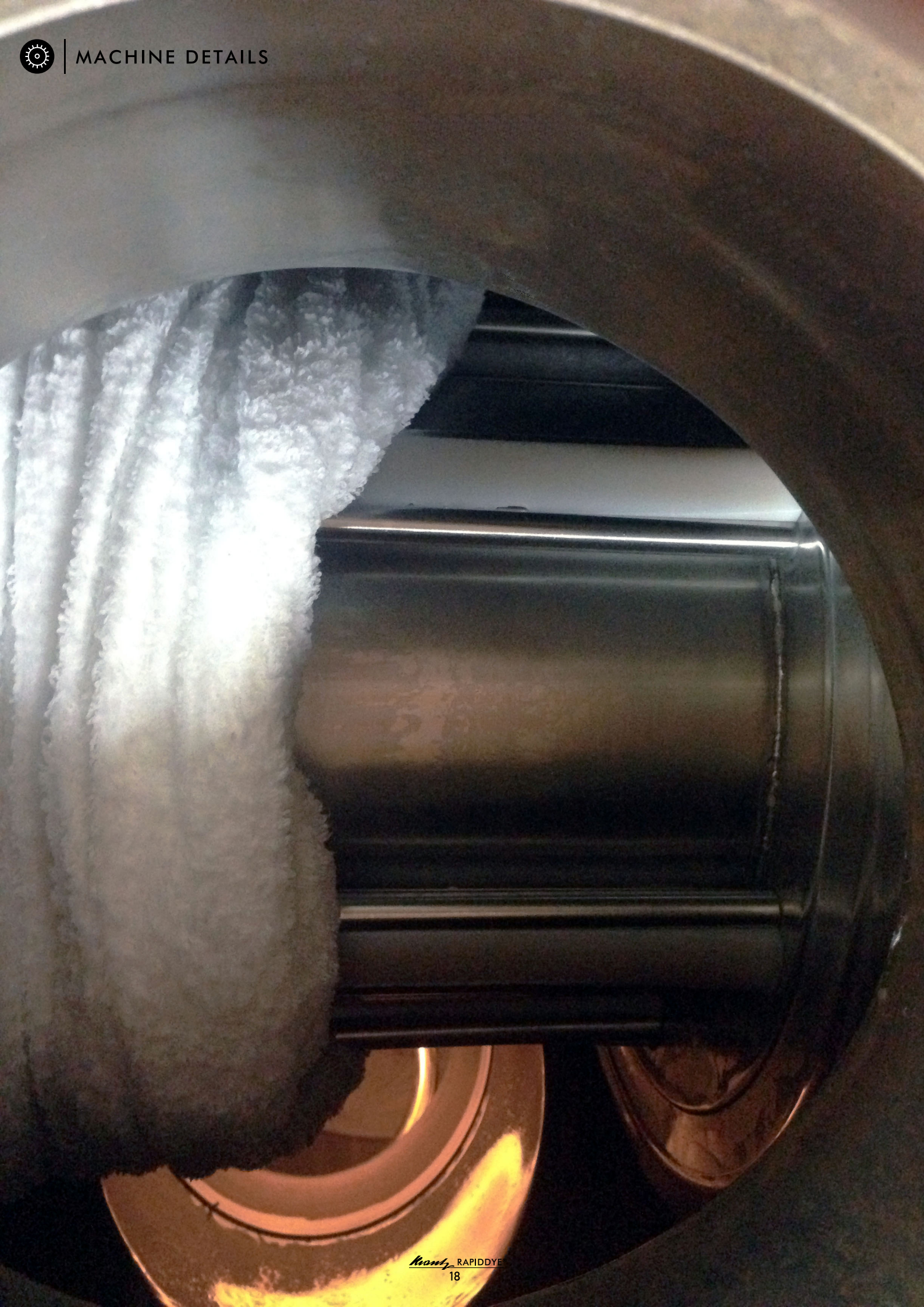
controller SEDOMAT series



frequency-controlled inverters





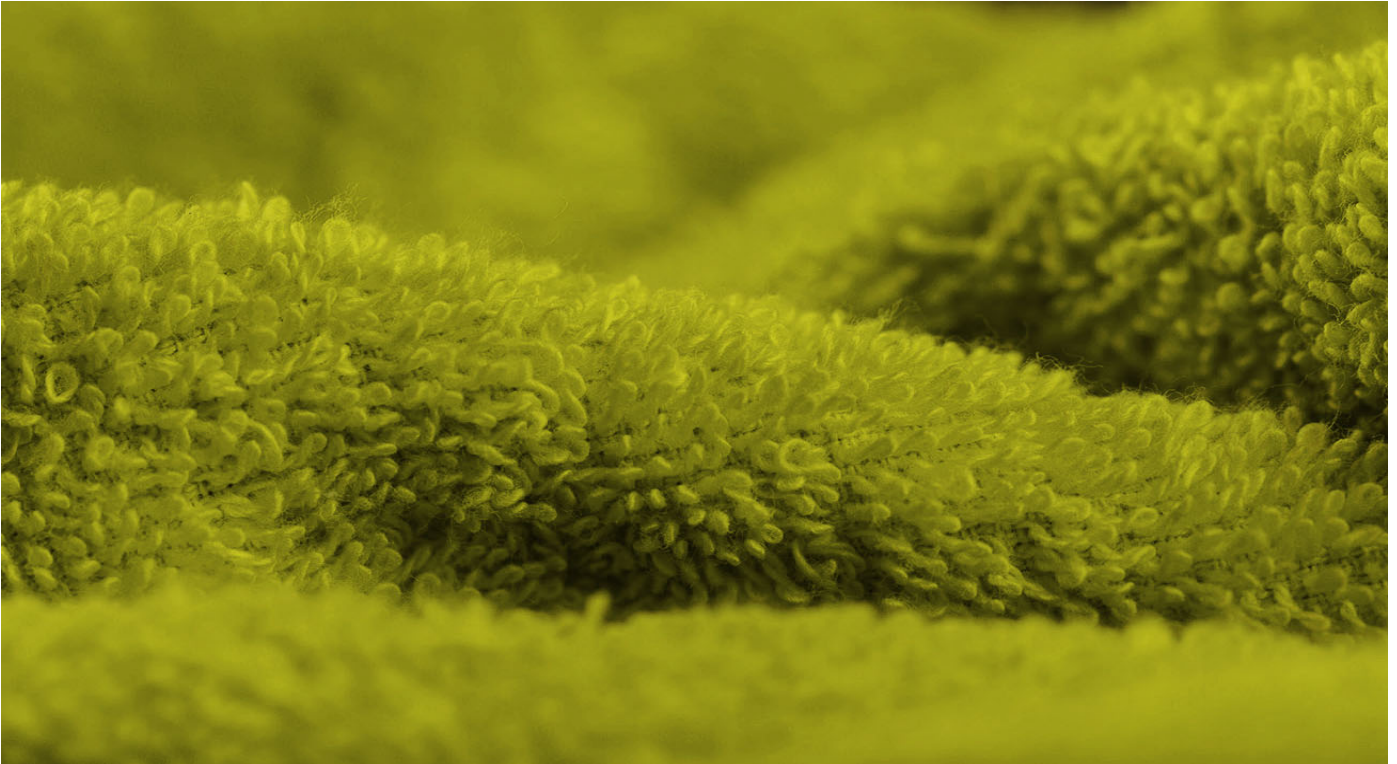






### RAPIDDYE-TT® ... the new standard for terry towel

Based on the proven concept of the standard **RAPIDDYE®**, the company KTM KRANTZ has developed a machine that covers the demand and technological requirements of the producers of terry towel in an excellent way.



the machine offers the same features and options as the standard machine except:

- 
- |                            |                             |
|----------------------------|-----------------------------|
| ✓ nominal chamber capacity | 250 kg & 300 kg             |
| ✓ fabric weight            | up to 1200 g/m <sup>2</sup> |
| ✓ liquor ratio             | starting from 1:6           |
| ✓ machine speed            | 20 m/min - 350 m/min        |
| ✓ nozzle system            | special cylindrical design  |
| ✓ winch/reel               | reinforced execution        |
| ✓ filter                   | twin filter                 |





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